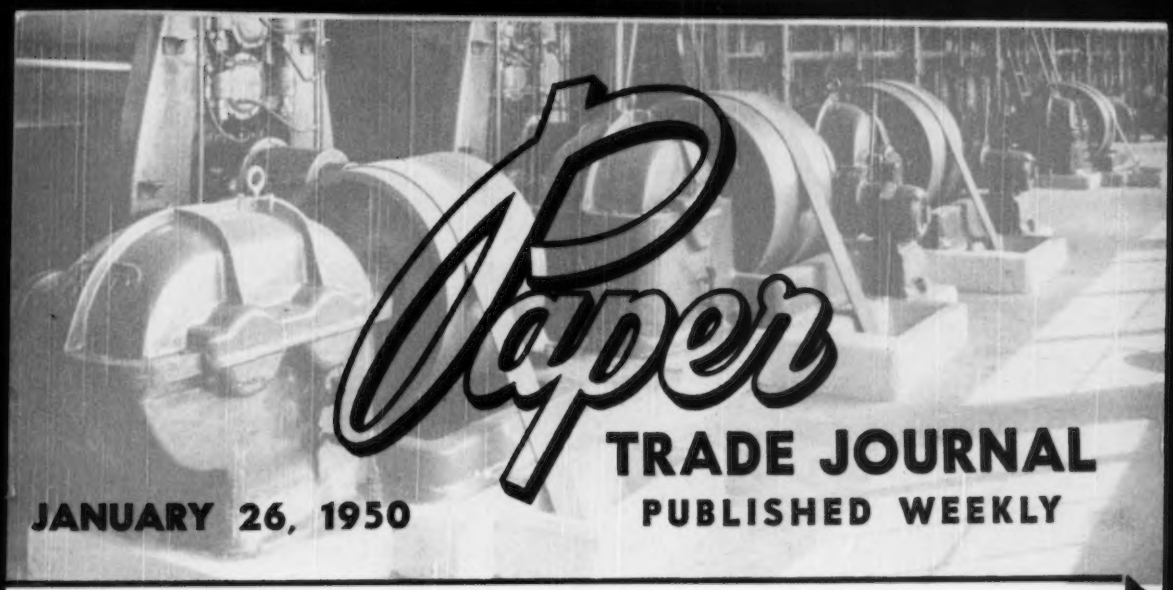


WOOD PULP

G

Established 1886

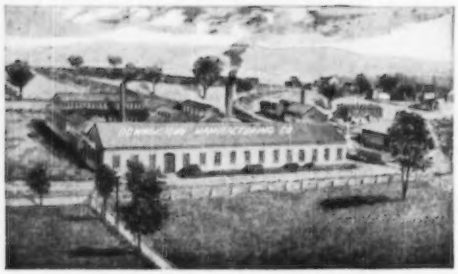
"The fields grow greener still."
CROSBY

Speaking of half-centuries: 50 years ago, paper consumption was only one-tenth of what it is now.

With the continuous research and development taking place in the industry, 1950 should mark another year of splendid progress.

We have complete facilities on an international scope for supplying Bleached and Unbleached Softwood and Hardwood Sulphites, Sulphates, Soda and Groundwood.

GOTTESMAN & COMPANY
— INCORPORATED —
22 EAST 40th STREET • NEW YORK 16, N. Y.
EUROPEAN OFFICES: Birger Jarlsgatan 8, Stockholm, Sweden

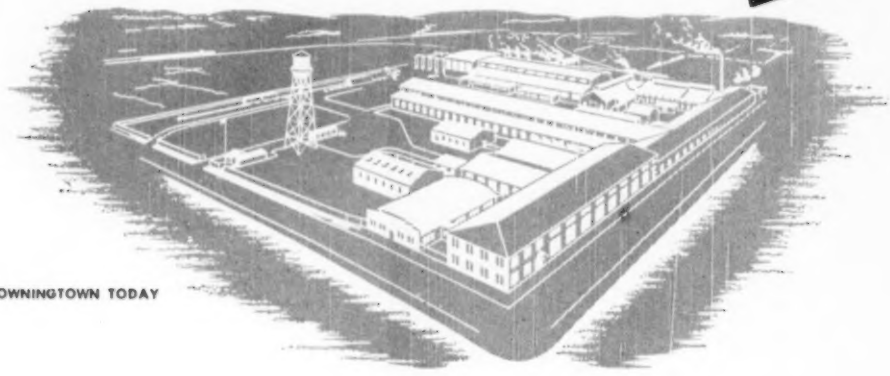


EARLY VIEW OF DOWNINGTOWN PLANT

1880

THREE SCORE AND TEN

1950



DOWNINGTOWN TODAY

The year 1950 is more than just mid-century for Downingtown. It marks 70 years of engineering, developing and manufacturing of paper making machinery to produce the quality sheet demanded by customers at a profitable operating speed. Down through these 70 years, Downingtown has always had a new and better paper machine or accessory ready for an ever progressing paper industry. THIS YEAR WILL BE BIGGER THAN EVER. Watch for announcements of the new "70th Anniversary" products developed and perfected to produce better paper and board at reduced costs to you. Experience during "Three Score and Ten" years of solving paper making problems assures you that these new Downingtown "firsts" are just what you've been waiting for.

DOWNINGTOWN MANUFACTURING COMPANY

DOWNINGTOWN, PA.

DESIGNERS AND BUILDERS OF PAPER MAKING MACHINERY SINCE 1880

Important points to know about COTTRELL *Electrical Precipitators*

A COTTRELL Electrical Precipitator is a major plant investment. Once installed it is operated over a period of many years, *thus multiplying year after year the benefits of top notch design and installation.*

And because of the many factors affecting the operating and collecting efficiency of a COTTRELL Precipitator, probably in no other field do the experience and "know-how" of the organization designing and installing the unit play a more important role in influencing the overall performance of the installation. That is why it is so important to remember this fact . . .

Western Precipitation Corporation is the organization that installed the first successful COTTRELL Precipitator over 39 years ago, still operating efficiently . . . and has consistently developed new refinements, new techniques, new applications that today have made it world famous in the science of recovering dusts, fly ash, mists, fogs and other suspensions from gases.

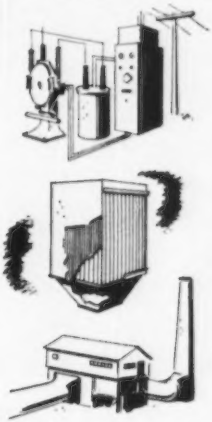
This is the first of a series of advertisements briefly outlining the important elements that go to make up a COTTRELL installation. Only long experience coupled with highest engineering ability, can assure the proper combination of these elements into a COTTRELL installation best suited to *your particular requirements*!

Basically, a Cottrell Precipitator consists of three major divisions each in turn consisting of many separate elements . . .

1. THE ENERGIZING SYSTEM, as its name implies, is the portion of the unit wherein the power is brought in, the voltage stepped up, then rectified to provide the unidirectional high voltage current supply for the Electrode System.

2. THE ELECTRODE SYSTEM consists of the high-tension ionizing electrodes and collecting electrodes through which the suspension-laden gas is passed to be cleaned. These electrodes can be of various designs, shapes and patterns and are equipped with various "rapper" arrangements which assist in keeping the electrodes clean of recovered materials.

3. THE HOUSING OR SHELL includes the structure containing the Electrode and Energizing Systems as well as the gas ducts and distributing system, the hoppers for receiving the collected material and other miscellaneous equipment.



Each of these three major divisions, together with their many individual parts, must be carefully engineered into ONE integrated and precisely-balanced unit to provide the successful and continuously-operating COTTRELL Precipitator. This series will take these major units apart to show in greater detail how the individual parts function and the varying types of design and construction. Watch for them.

10 COTTRELL ADVANTAGES

that make Cottrells unsurpassed for all types of recovery problems, hot or cold, wet or dry

1. **LOWEST DRAFT LOSS** — only a few tenths of an inch w. g.
2. **LOWEST POWER COST** — only ½ to 1 kwh. per 100,000 cu. ft. of gas cleaned.
3. **LOWEST MAINTENANCE COST** — all metal, few moving parts, no fire hazard.
4. **LOWEST LABOR COST** — operation can be fully automatic, if desired.
5. **LONGEST LIFE** — early Cottrell installations still operating after 39 years of continuous service.
6. **HIGHEST EFFICIENCY** — recovery efficiency approaches 100%, if desired.
7. **UNIVERSAL APPLICABILITY** — recover any suspension, solid or liquid — in any gas — over wide temperature ranges.
8. **ANY CAPACITY** — handle a few c.f.m. — or millions — with equal ease.
9. **MAXIMUM FLEXIBILITY** — readily adaptable to varying installation requirements.
10. **LOWEST OVERALL COST** — cost less per year of service, less per ton recovered. Often pay for themselves in a few months — always within a few years.

WESTERN Precipitation CORPORATION

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

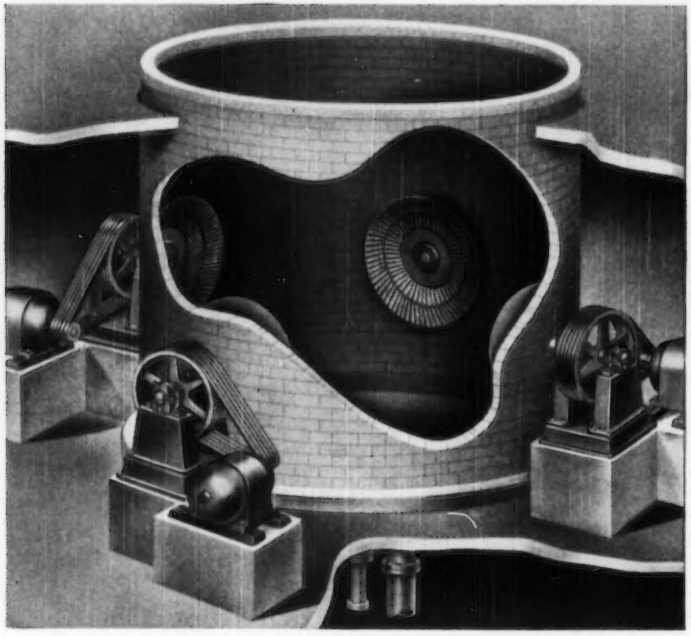
Main Offices: 1040 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
CHRYSLER BLDG., NEW YORK 17 • 1 LaSALLE ST. BLDG., 1 N. La SALLE ST., CHICAGO 2 • HOBART BUILDING, SAN FRANCISCO 4, CALIFORNIA
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

Do You Have This Helpful COTTRELL Booklet? In 28 pages of interesting charts, illustrations and descriptive data, it answers many of the questions engineers ask about COTTRELL design and construction. Send for your free copy. Ask for Bulletin C103!

Here's the New Rice Barton

QuatroPulper

. . . a high production machine . . . ideal for disintegrating pulp, broke or waste paper



THE stock is charged all at one time into the top of the vat. Four DynoPellers (described below) subject it to the vigorous dynomizing action that completely separates each fibre from its neighbor, maintaining its original length. The simple operating principle and design of the QuatroPulper eliminates the "wracking" and grief of other types of pulpers. Because there are few moving parts there is no loss of production time due to repair or adjustment. The QuatroPulper defibers the stock at low cost and produces a high quality slurry quickly and effectively.

Let us tell you how the QuatroPulper can save YOU *money in processing* YOUR *particular stock. Write today.*

The DynoPeller · · · · · ·▸
is the heart of all DynoMachines. Its concave face is lined with rough, hard carbide particles. As the DynoPeller rotates it causes a suction at its center that pulls the stock towards it. Centrifugal force then causes the stock to flow rapidly over the rough carbide particles. This effective dynomizing action completely disintegrates the stock . . . separating each fibre from its neighbor while maintaining its original length.

RBR8

RICE BARTON *Research Corporation*
WORCESTER 1, MASS.

PUBLISHED
EVERY THURSDAY
by
LOCKWOOD
TRADE JOURNAL CO., INC.
15 West Forty-Seventh Street
New York 19, N. Y.
Phone: PLaza 7-2370

GEORGE E. LOCKWOOD
President and Treasurer
ARTHUR E. GORDON
Vice-President
FREDERICK E. WINKLER
Secretary

HENRY J. PERRY
Editor
R. E. THUEMMES
Managing Editor
E. P. McGINN
Industrial Editor
E. P. NUTTALL
Associate Editor
F. B. GROSSE
Production Manager

REPRESENTATIVES

Eastern
BRUCE E. BROWN
FRANKLYN H. OLSEN
15 West Forty-Seventh Street
New York 19, New York
Telephone: PLaza 7-2370

Mid-Western
H. K. VINTON
GEORGE HEITZEBERG
Room 1020
79 West Monroe Street
Chicago 3, Ill.
Phone CEntral 6-2784

Pacific Coast
McDONALD-THOMPSON
639 South Wilton Place
Los Angeles 5, Calif.
Phone: DUnkirk 7-2590

564 Market Street
San Francisco 4, Calif.
Phone: YUkon 6-0503

Terminal Sales Building
Seattle 1, Wash.
Phone: Main 3860

115 S.W. Fourth Ave.
Portland 4, Ore.
Phone: Atwater 7401

Western
McDONALD-THOMPSON
317 Railway Exchange Bldg.
Denver 2, Colo.
Phone: Main 2733

Southern
EDWARD M. BUCK
1025 National City Bldg.
Dallas 1, Texas
Riverside 1230

Subscriptions
Payable in advance.
Single Copy 15c
U. S. $5.00 per year
U. S. Possessions $7.00 per year
Canada $7.00 per year—Canadian Funds acceptable
Latin American Countries $15.00 per year
All Other Countries $20.00 per year

ABC

Paper TRADE JOURNAL

ABP

VOL. 130 JANUARY 26, 1950 NO. 4

FEATURES

	Page
Produce Coated Paper At Bucksport	9
Monthly Newsprint Report	10
South Africa Gets Its Own Specialty Board Mill	13
Is The Northeast Headed For Federal Power And Water Control?	21
The Backdoor Approach To New England Power Authority	22
Excerpts From January Pulp, Paper And Board Industry Report	24
Getting The Most From V-Belts	29
Status Of Portable Chippers	31
Pulp And Paper Manufacture In The U. S.	41

DEPARTMENTS

	Page		Page
Trends	7	Prices	38
News of the Week	9	Materials	39
Associations	14	Imports	39
Merchants	15	Foreign Notes	40
Converters	18	New Literature	42
Forestry	18	New Equipment	42
Suppliers	28	Production Ratio Report	44
Patent Abstracts	35	Obituaries	44
Financial Record	37	Classified Advertising	47

Index to Advertisers 58

DATES TO REMEMBER

FEBRUARY 5: National Association of Waste Material Dealers, Inc., Mid-Western Div., Stevens Hotel, Chicago, Ill.

FEBRUARY 9: American Pulp & Paper Mill Superintendents Assn., Inc., Miami Valley Div., Manchester Hotel, Middletown, Ohio.

FEBRUARY 13-15: American Management Assn., Personnel Div., Palmer House, Chicago, Ill.

FEBRUARY 16: American Pulp & Paper Mill Superintendents Assn., Inc., Michigan Div., Hotel Harris, Kalamazoo, Mich.

FEBRUARY, 19-25: A.P.P.A., Waldorf-Astoria, New York City.

FEBRUARY 20-22: National Council for Stream Improvement, Waldorf-Astoria, New York City.

FEBRUARY 20-24: Technical Assn. of the Pulp & Paper Industry, Hotel Commodore, New York City.

FEBRUARY 21: Massachusetts Institute of Technology Alumni, Engineer's Club, 32 West 40th St., N. Y. C.

FEBRUARY 21: SAPI, Hotel Waldorf-Astoria, New York City.

FEBRUARY 22: N.Y.S. College of Forestry Alumni, Roosevelt Hotel, New York City.

FEBRUARY 22: University of Maine, Hotel Commodore, New York City.

FEBRUARY 23: A.P.P.A. Dinner, Annual Meeting, Waldorf-Astoria, New York City.

FEBRUARY 26-MARCH 1: American Institute of Chemical Engineers, Regional Meeting, Rice Hotel, Houston, Texas.

FEBRUARY 27-MARCH 3: American Society for Testing Materials, Committee Week & Spring Meeting, Hotel William Penn, Pittsburgh, Pa.

MARCH 13-15: National Assn. of Waste Material Dealers, Inc., Waldorf-Astoria, New York City.

MARCH 15-17: American Management Assn., Marketing Div., Hotel Statler, New York City.

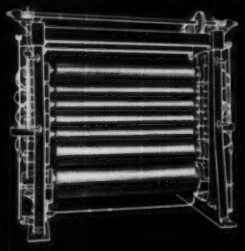
MARCH 22-23: Folding Paper Box Association of America, 1950 Carton Competition, Annual Meeting, Drake Hotel, Chicago, Ill.

MARCH 27-29: National Paper Trade Assn., Hotel Waldorf-Astoria, New York City.

JUNE 8-10: American Pulp & Paper Mill Superintendents Assn., Edgewater Beach Hotel, Chicago, Ill.

Entered as Second Class matter at the post office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. Publication Office at Lockwood Trade Journal Co., Inc., 34 N. Crystal St., East Stroudsburg, Pa. Printed in U.S.A. Copyright 1950 by Lockwood Trade Journal Co., Inc. PAPER established Feb. 17, 1899, combined with PAPER TRADE JOURNAL, Nov. 16, 1899. PAPER, established Sept. 21 1910, combined with PAPER TRADE JOURNAL, February 19, 1925. All rights to the above titles reserved. Contents of PAPER TRADE JOURNAL, including all articles, illustrations, etc., are copyrighted and may not be reprinted except by permission. PAPER TRADE JOURNAL is indexed in Industrial Arts Index and Engineering Index. Also publisher of LOCKWOOD'S Annual DIRECTORY OF THE PAPER AND ALLIED TRADES.

WHY YOU SHOULD SPECIFY FARREL CALENDER ROLLS



FROM THE WORLD'S LARGEST SPECIALTY ROLL SHOP

THIS 16-PAGE BULLETIN

ACT TODAY

PT

FARREL-BIRMINGHAM COMPANY, INC., ANSONIA, CONN.

Please send me a copy of your new Bulletin 116, "FARREL ROLLS FOR PAPER MILLS".

Name..... Title.....

Company .....

Address .....

City..... State.....

Farrel-Birmingham

Paper TRADE JOURNAL

TRENDS

Office of the PAPER TRADE JOURNAL,
Wednesday, January 25, 1950.

Book and Printing Papers

The year 1950—all of it—looks good to producers and distributors of book and printing papers who find demand increasingly active and heavy with prices strong and firming.

From the reports that deliveries are behind schedule, that demand is unabated, order backlogs growing, and that consumer inventories are in process of reconstruction, it can be assumed that the monthly gains in book and printing paper production are being sustained. It is learned that magazines are now taking full contract allotments, some even desiring excess tonnages.

Studying the heavy advertising campaigns which are getting underway, particularly for automobiles and the so-called luxury items now under excise tax, it appears that expanded consumer and trade magazine ads and direct-mail display material will swell the tonnages of book and printing papers required to support 1950's aggressive merchandising.

Intensive Research Needed

While demand continues at its present level, little apprehension is being felt in the printing paper field about increased imports. Intensive research and progressive merchandising, of themselves, can protect the expanding U.S. paper production against heavier imports and lighter exports, some industry spokesmen believe. Two-pronged research at an accelerated rate should (1) open up ways to increase per capita consumption and (2) continue to improve American paper-making techniques for higher quality and lower production costs. Sales promotional techniques that will support progressive selling at the merchant level must be the positive approach to increased competition from imports, it is stated.

Machine Coateds Gain

Perhaps nowhere in the entire industry are improvements in paper-making technology altering the face of the market so fast as in printing papers. With the development of machine-coating techniques, low-cost book paper is rapidly displacing supercalendered as a publication paper; and the constant evolution of improved machine-coating methods is producing enamel papers which are encroaching more and more on the domain once held solely by brush-coateds. Producers claim that the M.C. enamels will now do a superb 133-120 screen job, that new techniques will ultimately replace the conversion method entirely, and asked *Paper Trade Journal* to discontinue the separation of converston from machine coateds on the *Prices* page. As a result, a vigorous canvass was made of the New York area some months ago to get producer and merchant reaction to the suggestion, and opened up a veritable Pandora's box of strong feelings pro and con. A second request recently started a new survey of the market which has just been closed without a consensus having been reached. It appears that time and research will probably settle the matter conclusively in favor of the machine coateds.

Kraft Envelopes Strengthen

Reports from the New York area indicate a possible price rise on kraft envelopes. Demand is understood to be running way beyond possible supply, and price too close to costs.

Market Pulp Inventories

A glance at the wood pulp tabulation points to total market pulp inventories for November at close to October levels. A study will, however, show gains in sulfites and drops in both bleached and unbleached krafts.

The market on bleached krafts is reported to be extremely tight. Unbleacheds also are tightening in supply.

Newsprint Consumption Gains

Consumption. U.S. consumption of newsprint in December (estimated) showed a gain of 3.7 percent or 17,483 tons over December, 1948.

Consumer Stocks. Consumer stocks dropped by 13,405 tons to 41 days' supply, at projected rate of consumption. This compares with 45 days' supply at the close of December, 1948.

North American Mill Stocks. Canadian and U.S. mill stocks decreased by 19,780 and 2,401 tons respectively during the month. Total North American stocks were 743,718 tons at the close of December, compared with 737,498 tons last year, the NAC advises.

Advertising Linage. Newspaper advertising linage in 52 U.S. cities during the 11 months of 1949 was 1.7 percent higher than in the same months of 1948, but .6 percent behind the preceding month. Total linage for November, 1949, was 207,909.

Production. Canada produced 414,872 tons, a decrease of 5,416 tons or 1.3 percent from December, 1948 — operating 1.3 percent of capacity. U.S. output dropped 6.6 percent to 69,854 tons. European imports amounted to 15,000 tons, making total U.S. supply for the month 470,357 tons, compared with 475,948 tons in December, 1948.

Market Conditions. Heavy use of newspapers is proposed in Ford (Lincoln) and other advertising. Price continues to look strong despite offers of Swedish newsprint at lower prices than Canadian contract.

Production Indexes

Ratio of production of unbleached kraft paper to potential mill capacity for that product was 89.8 percent for the week ended January 14, compared with 92.8 for the preceding week, and with 87.8 percent for the corresponding week of 1949.

Comparative ratios of U.S. paper and paperboard production to mill capacity, as reported by AP&PA, are:

	Jan. 14 1950	Jan. 7 1950	Jan. 15 1949	Jan. 17 1948	Jan. 18 1947
Paper	101.1	‡94.3	94.7	93.9	103.8
Paperboard	94.0	74.0	93.0	104.0	103.0

‡ Revised.

Paperboard Production (Tons)*

	Jan. 14 1950	Jan. 7 1950	Jan. 15 1949
Production	207,624	170,281	194,092
New Orders	198,135	210,930	172,225
Unfilled Orders	388,173	399,645	337,149

* Source: NPA.

General Business Indexes

Index of general business activity for the week ended January 14 inclined to 153.8 from 150.0 in the preceding week, compared with 154.6 in the corresponding week of 1949. Index of paperboard production jumped to 215.3 from 180.9 in the preceding week, compared with 201.2 in the corresponding week of 1949.

WOOD PULP: U.S. PRODUCTION, CONSUMPTION, INVENTORIES, NOVEMBER, 1949

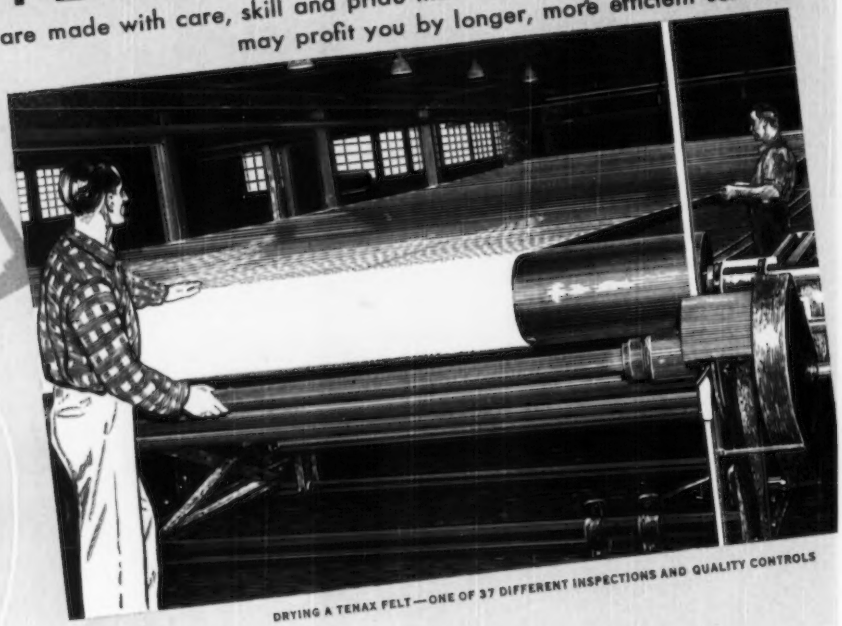
(Tons of 2,000 pounds)

Grade	U.S. Production Tons	U.S. Production % of Base	Consumption in paper & board manuf.	End of Month Inventories: At pulp mills, for later sale	End of Month Inventories: At paper & bd. mills Nov.	End of Month Inventories: At paper & bd. mills Oct.
Totals	1,031,130		1,181,117	40,331	388,138	425,103
Sulfite, Total	229,038	82.3	274,221		196,425	188,631
Blchd., Total	149,082		175,485	23,823	87,227	81,459
Dissolving & sp. chem.						
Softwood paper grds.	140,617		163,293		84,168	78,143
Hardwood paper grds.	8,465		10,192		3,059	3,316
Unbichd.	56,817		100,736	6,537	109,198	107,172
Sulfate, Total	560,018	91.6	639,547		125,182	132,537
Bichd.	91,016		142,361	....	59,900	63,350
Semi-bichd.	21,697		26,023	....	3,781	3,773
Unbichd.	399,606		471,223	2,667	61,501	63,414
Soda	44,999	89.5	49,418	323	12,460	11,749
Groundwood	164,350	72.8	185,798	276	31,386	30,102
All other	137,327	90.3	137,325	6,049	6,374	6,096
Totals	1,920,294	86.4	1,286,309	39,675	371,827	369,115

Based on Bureau of Census figures.

TENAX FELTS

are made with care, skill and pride that they may profit you by longer, more efficient service



DRYING A TENAX FELT—ONE OF 37 DIFFERENT INSPECTIONS AND QUALITY CONTROLS

From the carding of the virgin wool to the delivery of your Tenax Felt, every step in its making is a point of inspection and quality control. This care exercised at Lockport pays off for you on your paper machines in helping you attain more care-free runs.

The Lockport representative in your territory is fully qualified to advise on all technical questions relating to felts. He is at your service as is our plant and all its people. We invite your inquiries.

LOCKPORT FELT COMPANY • NEWFANE, NEW YORK

News of the Week

Produce Coated Paper at Bucksport

BUCKSPORT, Maine — After the expenditure of several millions of dollars and more than three years of intensive work and planning, the St. Regis Paper Co.'s Bucksport mill recently took its place as one of the nation's sources of high-quality coated paper.

The change to a finer grade product and the huge task which the change involved began a little more than three years ago with extensive plant alterations. Whole sections of the mill were enlarged to accommodate new machinery which had not been required in the manufacture of newsprint.

Towering supercalenders, later to harden and buff the finish of the huge rolls of coated paper, were set up piece by piece in one new section of the mill, new digesters were installed, and in another addition, workmen set up a bleaching plant which extends upward through three floors in a maze of piping.

The mammoth paper machines themselves were altered, and a building was constructed where coating clay, alum, size and glue would be handled. Another building was erected to house the machinery necessary to prepare the coating mixture, and improvements were made in several other parts of the process.

Finally, workers and company officials tackled the immense task of installing the specially-designed coater—one of the widest in the world.

Approximately 700 people are employed at the Bucksport plant, including the 150 additional employes required to operate new machinery and perform new tasks which the change from newsprint to coated paper required.

Mando Moves Engineering Dept.

MINNEAPOLIS, Minn.—Headquarters for the supervision of engineering activities of Minnesota and Ontario Paper Co. has been transferred from Minneapolis to International Falls, Minn., Donald D. Davis, president of Mando, announced on January 16.

J. H. Davidson, chief engineer, will continue as head of the engineering department and will immediately assume his duties in International Falls. He will be responsible to Clarence Larson, vice-president in charge of production. Mr. Davidson will exercise staff supervision over all of Mando's engineering activities at International Falls, and at Fort Frances and Kenora, Ont. His immediate staff will consist of F. W. Woodman, electrical engineer; B. J. Shields, mechanical engineer; and A. S. Thompson, estimator.

J. H. DAVIDSON

Mando's chief engineer since 1933, Davidson is a graduate of the University of Maine where he received his degree in civil engineering. His first assignment as a Mando engineer was the Seine river survey in 1921 which preceded the design and construction of power developments in northwestern Ontario.

Brown Corp. Sets Safety Record

LATUQUE, Que.—Culminating a campaign during 1949 to "make our mill the safest in Quebec," Brown Corp. LaTuque mill, on January 12, chalked up 1,000,000 hours worked without a lost time accident. W. B. Beckler, works manager, stated that although early records are not available it is believed certain that this is the best safety record in the history of the mill since it began operation in 1910 and represents 135 days of operation without loss of time due to accident. The workmen and supervision of the mill, through their active cooperation, have created this record which, according to the results of the provincial, national and international safety competitions, places the Brown Corp. mill among one of the safest on the continent.

Kimberly-Clark Pension Plan

APPLETON, Wis. — The Kimberly-Clark Corp. put a sixth of its earnings, or more than $1,000,000, into its company pension plan in 1949, according to William H. Clifford, a vice-president of the company.

Speaking before the Menasha, Wis., Rotary Club, Mr. Clifford outlined what industry means to the community. Stability of employment is an important factor, he said. Using the Kimberly-Clark Corp. as an example, he showed how 80 workers were affected when one department of the Lakeview mill was abandoned recently. Rather than being discharged, those employes were transferred to other work and kept in jobs.

The Kimberly-Clark pension plan was adopted in 1915, although the company had provided some pensions for workers before that. Now, when an employe reaches 65, he is paid each month according to his average earnings during the latter years of his service. The formula used to determine his pension is seven-eights of one percent for each year of service, multiplied by the average earnings of the highest 10 consecutive years of his last 15 years in the company's employ. If the employe chooses to retire at 60 or at any other age between 60 and 65, he is paid on an adjusted scale based upon the years left before he would reach 65.

The Kimberly-Clark payroll in 1949 was between 30 and 35 million dollars, it was explained. The profit amounted to between 6 and 7 million dollars on a 100 million dollar investment. "The wages thus are five times the earnings and one-sixth of the earnings goes to the security of the employes," Mr. Clifford stated. Pensions are paid monthly until the death of the employe and the group insurance plan is extended after the employe's retirement. The widow receives the insurance coverage upon the death of the pensioner.

Corneell Retires from Union Bag

HUDSON FALLS, N. Y. — Harry T. Corneell retired as business manager of the Union Bag and Paper Corp. on January 1 following a half century of service. He started with the firm in 1897 when only fifteen years old. He was recently tendered a dinner party at which Douglas Baird, manager of the planning division, acted as toastmaster.

MONTHLY NEWSPRINT REPORT

NEWSPRINT ASSOCIATION OF CANADA, MONTREAL

		DECEMBER			YEAR TO DATE		
		1949	1948	Percent Change	1949	1948	Percent Change
I. PRODUCTION AND SHIPMENTS in short tons: 2000 pounds.							
1. Canadian Production: including Newfoundland	month and year to date	414,872	420,288	1.3	5,176,327	4,982,834	3.9
	per working day	16,314	16,547	1.3	16,806	16,126	4.2
	percent of capacity	98.4	104.7		101.2	102.0	
2. Canadian Shipments: including Newfoundland	to United States	384,181	376,302	3.7	4,380,250	4,127,970	6.1
	to Canadian Consumers	30,222	27,839	8.6	335,385	306,485	9.4
	to Other Markets	20,249	47,838	53.8	448,697	532,589	15.8
	total: all markets	434,652	441,979	1.7	5,164,332	4,967,044	4.0
3. U.S. Production:	month and year to date	69,834	74,817	6.6	899,528	867,494	3.7
4. U.S. Shipments:	to U.S. Consumers	71,176	72,840	2.3	883,657	857,540	3.0
	to Other Markets	1,079	744	45.0	14,003	9,309	50.4
	total: all markets	72,255	73,584	1.8	897,660	866,849	3.6
5. U.S. Imports from Europe:	*estimate: see Table 8	*15,000	32,806	54.3	*257,656	267,434	3.7

		DECEMBER			YEAR TO DATE		
		1949	1948	Percent Change	1949	1948	Percent Change
II. CONSUMPTION AND STOCKS in short tons: 2000 pounds.							
6. U.S. Consumption:	estimated total	483,762	466,279	3.7	5,529,206	5,140,806	7.6
7. North American Stocks:	U.S. Consumers	611,714	619,357	1.2	611,714	619,357	1.2
	Canadian Mills	121,190	109,195	11.0	121,190	109,195	11.0
	U.S. Mills	10,814	8,946	20.9	10,814	8,946	20.9
	estimated total	743,718	737,498	.8	743,718	737,498	.8

Union Bag Plans Expansion

SAVANNAH, Ga.—Alexander Calder, president of the Union Bag & Paper Corp., reports that two major expansion projects are being planned. They include:

1. A $1,500,000 addition to the bag factory, work on which will get underway immediately and be completed in about ten months.

2. A sixth unit for the huge Savannah plant to utilize hardwood for the production of Kem pulp. "This will come sometime in the future, probably about three to five years from now," Mr. Calder said.

"The addition to the bag factory will be erected on a site adjacent to the box factory," he continued. The new space will be used for normal growth in business, for equipment brought from the Hudson Falls factory and for more inventory space.

Mr. Calder said he was "enthusiastic" over the prospect of expanding the production of Union Bag & Paper into the field of hardwood. "Up to this time soft wood has been used exclusively," it was pointed out, "but with the anticipated introduction of facilities for manufacture from hardwood, the program of the company will be greatly expanded. A new process has been perfected for manufacture from hardwood and while the company experts have been studying the process for some time, they have not previously introduced it due to having expanded in other directions, and also postponed such a project due to recess in business in the past year," Mr. Calder explained.

"The project will require additional pulp and new paper machines. A considerable amount of hardwood is owned by Union Bag & Paper and is purchasable in this area."

Marathon's Training Program

MENASHA, Wis. — The Marathon Corp., now has 35 registered in its apprentice training program, which embraces a variety of trades. Not only is the training directed towards the hand skills, but developments of the individual's way of life is also a target. This means, Marathon officials declare, developing attitudes, leadership qualities, analytical reasoning, trade judgment and social consciousness.

The apprentice selecting setup is a joint enterprise of the union, management and the state industrial commission. The first step is the "indenture" of the apprentice, who has been selected from previous aptitudes, service or education. He agrees to follow training schedules at various machines, and to take related instruction at the local vocational school. Here the prospective machinist is offered mathematics and blueprint reading, the electrician, electrical theory; the draftsman, mechanical drawing. The courses vary from four to six years, depending on the trade. The graduates are given a diploma which is considered by many as the equivalent to a college degree.

Through their apprentice training program, Marathon hopes to achieve, with the cooperation of the schools, better tradesmen and citizens of the community.

Champion Honors Old Timers

CANTON, N.C.—More than 400 members of the Champion Old Timers Club enjoyed their 16th annual party at Canton Armory on January 15, with Reuben B. Robertson, president of the Champion Paper and Fibre Co., as host.

The club now boasts a total of 492 members, the largest since the club was organized in 1935 by Champion's president to honor employes who had 25 or more years of unbroken service. Mr. Robertson delivered a special message to Old Timers in which he expressed appreciation for their loyalty over the years.

Reuben B. Robertson, Jr., executive vice-president of the company, spoke on "Lifetime Champions," while Dwight J. Thomson, vice-president in charge of industrial and public relations, spoke on "Service Recognition." Tull L. Jamison, retired Old Timer, furnished humor with "Tull's Tales."

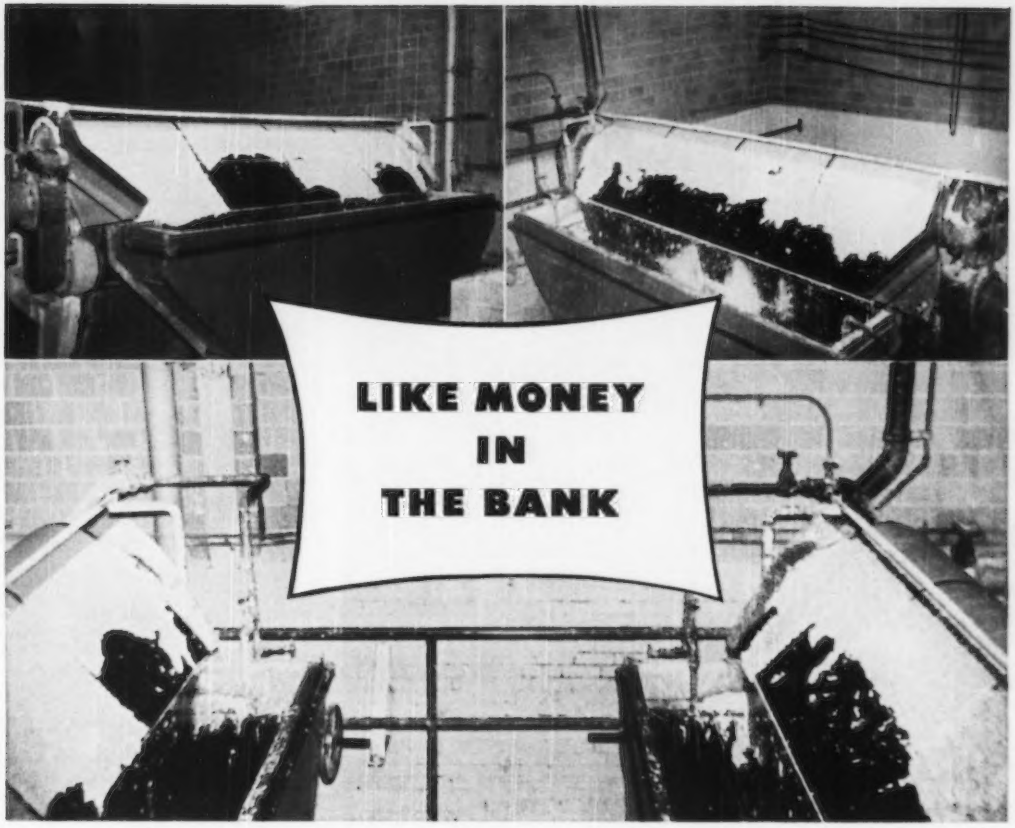
George M. Trostel, production manager of the Canton division and acting division manager in the absence of H. A. Helder, gave the address of welcome. E. M. Geier, supervisor of the cashier section of the Canton division and retiring president of the Old Timers Club, responded to Trostel's address of welcome.

Miss Dorothy Hempstead, Asheville musician, furnished organ dinner music. The Foresters and Skylarks Quartets of Asheville also provided musical entertainment.

A. J. Reno, storekeeper for Canton division, gave the report of the nominating committee for new club officers. Claude B. Witt was elected president and J. Ray Byers vice-president. Miss Mae Holtzclaw was re-elected secretary.

E. H. Porter Goes to Brown

BERLIN, N. H. — Ernest H. Porter, who has had wide experience in the design of pulp and paper mills and equipment, has accepted the position of chief draftsman with Brown Co., Berlin, N. H., manufacturers of pulp and paper and allied products. Mr. Porter comes to Brown Co. from a position with Alvin H. Johnson, Inc., of New York, pulp and paper consulting engineers.



...all these clean, white fibres, processed and ready to be made into *pay* paper. Bird Save-Alls are recovering them at lowest possible cost per pound.

These fibres have gone through a lot of expensive preparation. You wouldn't want them to go to waste in *your* mill, would you?

Better make sure that your white water system meets 1950 standards of efficiency and economy. For recommendations, layouts and estimates, write

BIRD MACHINE COMPANY · South Walpole, Massachusetts

BIRD SAVE-ALLS

saving American paper mills close to two million pounds of paper stock per day

TECHNICAL KNOWLEDGE REDUCES COSTS

A new efficient way of handling wood out-of-water engineered by technicians of the Wellman Engineering Co., Cleveland, the Thew Shovel Co., Lorain, and the Bowaters Newfoundland Pulp and Paper Mills, Ltd., Cornerbrook, Newfoundland, has been able to reduce the cost of that operation by 60 percent . . . By using Wellman Type "T" log grabs on Lorain 820 cranes, Bowaters has been able to reduce the number of men formerly used for the loading job from 80 to 20 and has extended the loading season by more than a month by eliminating the necessity of man-handling the logs in cold water . . . The cost of this operation is one-third that of the slow, dangerous hand-labor method of handling wood . . . A barge made from a 100-ton LST is towed to the various pick-up points. The Lorain Cranes, using Wellman grabs, reach into the water and swing the load over the deck of the barge and cast it into the hatches . . . By combining the experiences of highly trained and experienced technicians, these organizations have been able to eliminate an operation that has troubled paper and wood pulp companies for years . . . The illustration shows the hatches through which the Lorain cranes cast pulpwood from the Wellman out-of-water log grab as viewed from the deck of the LST barge.

Scott Scramble

GLENS FALLS, N. Y. — Robert H. Sears, plant manager of the South Glens Falls plant of the Marinette Paper Co., has announced the following promotions effective the week of January 16.

James S. Brown, assistant paper mill superintendent at the Fort Edward mill, moves to South Glens Falls as paper mill superintendent. Mr. Brown first worked for Scott Paper Co. in 1933 as a third hand in Chester, Pa. Successive promotions made him a back tender and then a machine tender. He later worked in the Engineer and Technical Control departments becoming paper mill methods manager in 1944. In October, 1947, he was promoted to assistant paper mill superintendent at Fort Edward.

John B. Danner, Jr., present finishing department shift manager at the Fort Edward plant, moved to South Glens Falls as finishing department superintendent. Mr. Danner joined the Scott Paper Co. in November, 1945, as a member of the personnel department at the Chester, Pa., plant. In July, 1946, he was promoted to employment manager at the Chester plant, moving to Ford Edward in 1946 to assist in the personnel department. In February, 1947, he became a member of the finishing department supervisory group.

J. Howard Schneider, Jr., has assumed duties as plant accountant at the South Glens Falls mill. Prior to his moving to this area, he was a member of the accounting staff at the Chester, Pa., plant. He will be assisted by Fred Fairchild and Lynn Pingrey. The latter was promoted from the Fort Edward accounting staff to the new position at South Glens Falls.

Ralph G. Young, formerly of the mechanical development department and most recently the engineer in charge of the construction of the new modern paper machine at Fort Edward, has been named plant engineer at South Glens Falls. Mr. Young came to this area with a wealth of paper machine knowledge having worked in the engineering department of other paper manufacturing concerns since his graduation from college.

Fred Herbolzheimer, Jr., has been appointed to the post of technical control manager at South Glens Falls. He is a graduate of the University of Maine with a master's degree in chemistry and he has been assistant technical control director at the Fort Edward plant.

These promotions and additions are brought about as the result of establishing the South Glens Falls plant as a separate entity in supervision, management and operation from the Fort Edward mill of the Marinette Paper Co.

Mando Modernizes Insulite Machine

MINNEAPOLIS, Minn—Number 3 Insulite machine in the International Falls, Minnesota plant of Minnesota and Ontario Paper Co., will be shut down this week under a modernization program expected to keep the unit out of production for five weeks, Clarence Larson, vice-president in charge of production, announced today.

The machine, which has been in operation since 1929, will be completely overhauled and fitted with improved equipment for greater efficiency and productive capacity. Regular Mando mechanical and maintenance crews will handle the job under the supervision of C. S. Steed, erector for the Coe Manufacturing Co. of Ohio. Whatever extra help is needed on the project will be drawn from the ranks of production workers idled by the shut-down.

Plans call for work on both the kiln and wet end of the machine. All drive chains in the kiln will be renewed and the unit re-aligned. The kiln will also be converted from a two to a three-unit circulation system to provide for faster and more uniform distribution of heated air for drying the insulating board. Wet and improvements will include a new drive for the forming machine, new headbox with agitating equipment and agitators for the machine chest. Another phase of the project will be the installation of a stainless steel covering on the cast iron press roll.

Columbia Cellulose Progresses

VANCOUVER, B. C. — Five buildings have been completed at Watson Island for the Columbia Cellulose Co., Ltd. The company, which is a subsidiary of the Cellulose Co. of Canada, has eleven more buildings rapidly nearing completion, and machinery will be installed during the next few months, according to Harold Blancke, president. Independent logging contractors are already at work in the area storing up lumber reserves for the plant and company logging operations will be commenced in the near future.

American Box Board Seeks Mill Site

GRAND RAPIDS, Mich. — American Box Board Co. is surveying sites in Grand Rapids, Chicago, and three Michigan cities—Holland, Grand Haven and Manistee—for a proposed expansion of mill production. The Grand Rapids mill is not equipped to handle further expansion planned by the company which operates plants in Filer City, Mich., near Manistee, Chicago, and Grand Rapids.

A. G. Freas Named Bucknell Trustee

LEWISBURG, Pa. — A. Guy Freas, paper manufacturer of Tenafly, N. J., has been named a trustee of Bucknell University, it was announced here by Horace A. Hildreth, president of the university. Mr. Freas is vice-president and director of the Federal Paper Board Co., Inc., of Bogota, N. J., and has been associated with paper and paper board industries since 1919. He is a native of Rohrsburg, Pa., and maintains a summer home at Huntington Mills. Mr. Freas' son, Arthur K., was graduated from Bucknell in 1948, and his daughter, Rebecca L., is a member of the senior class at the University.

Clow Named Production Manager

PHILADELPHIA—R. R. Clow recently resigned as vice-president of the Maryland Container Co., Baltimore, to become associated with Federal Container Co., Philadelphia, as production manager. Both organizations are wholly-owned subsidiaries of Fibreboard Products Inc.

Gardner Adds Two to Sales Staff

MIDDLETOWN, Ohio — The Gardner Board and Carton Co. has added two to its sales organization. They are Roland W. Richardson of 785 Ivy avenue, Glendale, who is to develop and direct the sales promotion and advertising work of the company, and Robert E. Van Rosen of New York City, who was named a development engineer.

Madden Elected B. & M. Director

BOSTON, Mass. — James L. Madden, president of Hollingsworth & Whitney Co., has been elected a director of the Boston and Maine Railroad.

South Africa Gets Its Own Specialty Board Mill

TRANSVAAL, S. A. — The board mill of the Trans-African Paper Products (Pty.) Ltd., is now in the course of erection on a 10 acre industrial site between Benoni and Boksburg, about 18 miles east of Johannesburg. The mill is to produce specialty boards, such as suitcase boards, presspan, and other industrial qualities, all of which are being imported at the moment. The initial plant is designed for the capacity of 100 tons per month, and ample provisions have been made for expansion, in order to keep pace with the demand of the market which is expected to increase very rapidly.

Apart from the South African market, the firm has already received many inquiries for suitcase boards which are extensively used in neighboring countries for the native trade. This is one of the typical items which have been encouraged during recent years by the South African Government in order to utilize local raw materials for the production of articles previously imported from overseas.

The mill will be equipped on the most modern lines, and only a few operators will be required. The machinery will include coating and glazing machines, and an ultra-modern infra-red dryer for lacquers. The wet boards from the vat machines will be dehydrated in an 800 ton hydrolic press, after which they will be dried by air in order to retain the best characteristics of the fibres. An interesting feature of the mill is that it will be operated on an entirely closed water-system, based on a Sveen-Pedersen save-all. Only a small amount of water will be purchased from the Town supply to make up for the evaporation, and other small losses.

Consultants for the design and erection of the mill are Messrs. Celdecor Africa (Pty.) Limited, Benoni. Production is scheduled to be started in July, 1950.

Hammermill Honors Three

ERIE, Pa. — Well over 100 years of service are represented by Agnes Berkheimer, Elizabeth Berry and Walter Sawford, who retired from Hammermill Paper Co. recently. The three were honored by 175 of their fellow workers at a farewell dinner party at the East Erie Turners. Miss Berry is the oldest-in-service woman employe in the history of the company, having been with Hammermill over 45 years at the time of her retirement. Norman W. Wilson, president, presented retirement certificates to the workers.

Hayward Named Director

KALAMAZOO, Mich. — The appointment of Ralph A. Hayward, president of the Kalamazoo Vegetable Parchment Co., as public interest director of the Federal Home Loan Bank of Indianapolis, Ind., was revealed January 5 by the bank's board of directors. He will serve a four year term extending through 1953. The Indianapolis reserve credit institution serves the needs of member savings and loan associations in a district comprising Michigan and Indiana.

Proposed Pakistan Mill Progresses

OTTAWA — Plans submitted by both Canadian and Swedish consultants for a paper mill in East Bengal are being studied and it is expected that by 1952 a 30,000-ton plant will be in operation at Kaptaimuk, in the Chittagong Hill Tracts, East Bengal, according to a report from Karachi, Pakistan, by G. A. Browne, Canadian Government Trade Commissioner, to Foreign Trade, Department of Trade and Commerce.

He states that between 20,000 and 25,000 tons of paper, cardboard and pulp products required by Pakistan annually are imported at the present time. Requirements in five years are expected to reach an estimated 30,000 tons.

The establishment of one paper factory in East Pakistan, to be in operation by 1954-55, having a capacity of 100 tons per day, has been recommended, he points out, adding that local bamboo, salt and lime, which are available in sufficient quantities, would be utilized, while dyes and chemicals would be imported. It would still be necessary to meet certain needs for cardboard and newsprint from imports.

Folke Becker Resigns As Bank Pres.

MILWAUKEE, Wis. — Folke Becker, president of the Rhinelander Paper Co., has resigned as president of the Merchants State bank to devote his time to the paper firm. He also is president of Trees for Tomorrow, Inc.

Celebrates Two 50th Anniversaries

PORT HURON, Mich.—Thomas Warren, 76, is celebrating two 50th anniversaries this year. He is plant protection foreman at the Port Huron Sulphite and Paper Co. where he has been employed for the past 50 years. January 8 he and Mrs. Warren celebrated their 50th wedding anniversary with 30 friends and relatives.

Rust to Build for N. Y. Penn.

PITTSBURGH, Pa. — The Rust Engineering Co. will build a new 150-ton per day soda recovery plant to serve the Johnsonburg, Pa., paper mill of the New York and Pennsylvania Co., it was recently announced.

Contract calls for design and installation of a soda recovery boiler, to be fired with black liquor from the pulp processing, and the building to house it. The steel frame, brick and tile building will be six to seven stories high and 70 feet long by 40 feet wide.

Great Lakes Plans Expansion

OTTAWA—It is understood that the Great Lakes Paper Co., Ltd., plans an expansion program which will involve expenditures of between $15 million and $17 million, with president, W. Earl Rowe having disclosed that the company already has spent $60,000 on detailed engineering plans for the proposed expansion.

Mr. Rowe has also gone on record with the statement that increasing demand foreshadows a good year for the pulp and paper industry, adding that the demand for newsprint is stronger than it was during the same period in 1949 and that it seems to be general. He has indicated that the company's mill in Fort William, Ont., is running at near peak production and is "experiencing difficulty in supplying customers with their full requirements." The sulphite pulp business, which experienced a slump last year, is also improving, he said.

Dixon Serves In Red Cross Campaign

NEW YORK—Willard J. Dixon, vice-president and treasurer of the St. Regis Paper Co., will lead the paper industries and their commercial outlets in the 1950 Red Cross Fund campaign of Greater New York, it was announced January 19. Mr. Dixon will serve in the campaign section headed by Burl S. Watson, president of the Cities Service Oil Co. This group will carry the Red Cross appeal to the metals and machinery industries and to the companies engaged in the petroleum, paper and chemical fields.

Wilkinson Attends Conference

APPLETON, Wis. — A. D. Wilkinson, production manager of Kimberly-Clark, was among 49 representatives of industry from Wisconsin, Illinois and Iowa who recently attended the third of a series of plant superintendents conferences held by the industrial management institute of the University of Wisconsin in Madison.

Scott Transfers Rittenhouse

CHARLOTTE, N. C—Scott Paper Co. has appointed William Rittenhouse as manager of its Charlotte sales district. Mr. Rittenhouse, who joined Scott in 1939, has been manager of the Allentown, Pa., sales district since 1946.

BENJAMIN FRANKLIN LEARNS ABOUT PAPER

Charles V. Morris, (standing, left) tells Benjamin Franklin, down from celestial regions in printer's garb, about the many kinds of paper available to the modern printer. The skit took place at the Printing Week luncheon of the Sales Executives Club of New York at the Hotel Roosevelt on January 17, Franklin's 244th birthday anniversary.

P. M. Fox Named Bank Director

OTTAWA—Percy M. Fox, president of Lake St. John Power & Paper Co., Ltd.; St. Lawrence Paper Mills Co., Ltd.; and St. Lawrence Sales Co., Ltd. and vice-president and general manager of St. Lawrence Corp. and vice-president of Brompton Pulp & Paper Co., Ltd., has been named to the Board of Directors of the Imperial Bank of Canada.

ASSOCIATIONS

Superintendents Plan Open Forum

CHICAGO—An open forum type of meeting on the know-how of handling materials and machinery, according to "Rich" Peeters, St. Regis Paper Co., Kalamazoo, Michigan, secretary-treasurer of the Michigan Div. of The American Pulp and Paper Mill Superintendents Assn., Inc., is being planned for the meeting of the Division to be held on February 16 at Hotel Harris, Kalamazoo, Mich., at 6:30 P.M.

O. W. Callighan, Edgar Bros. Co., first vice-chairman of the Division, is to act as moderator of the meeting which is being designed to bring out procedures that are being used by the various mills in the handling of materials and in the operation of equipment.

A special invitation to attend is extended by the Division to department heads of all mills in the area in order that they may voice their individual problems and also ask questions. Audience participation is to be the theme of the meeting.

W. F. Hathaway, Kalamazoo Vegetable Parchment Co., Parchment, Kalamazoo, Chairman of the Michigan Division of the Superintendents Assn., will preside.

Printing Show Exhibitors

BOSTON—Among the exhibitors at the Printing Show held January 17-19 as a part of the Fourth Annual Printing and Publishing Week of New England in the First Corps Cadets Armory were the following:

The Arnold Roberts Co. A display of fine papers for printing, featuring West Virginia mill brand papers.

Nashua Gummed and Coated Paper Co. Heat seal papers, Pervenac and I-Mac.

Nashua Package Sealing Co. National line of gummed tape moistening machines, gummed label moisteners, and plain and printed gummed tape.

Oxford Paper Co. Display panel featuring lighted photographic transparencies of Oxford Mill operations and equipment; a visual presentation of processes, plates and printed material—offset, letterpress and gravure; a display of end products using Oxford papers.

Chemical Exposition September 5-9

CHICAGO—The Sixth National Chemical Exposition by the Chicago Section of the American Chemical Society will be held in the Chicago Coliseum September 5 through 9. It will be a bigger

and better show than ever before according to Dr. Marvin C. Rogers, research director of R. R. Donnelley and Sons Co., who is chairman of the committee in charge. The large amount of interest which has been shown since the recent announcement of the dates is a good indication that it will be a very successful exposition, it is reported.

Dean Lewis Discusses Lignin

NEW ORLEANS, LA.—Research being done into possible uses for lignin was discussed by Dr. Harry F. Lewis, dean of the Institute of Paper Chemistry, at Appleton, Wis., on January 20, at the Richardson chemistry building of Tulane University.

The talk, sponsored by the Louisiana Section of the American Chemical Society, is important because an average of more than 8,000 tons of lignin is being produced daily in the manufacture of sulphite pulp alone, Shelton M. Johnson, secretary, said. He added, "Lignin offers both a problem in waste disposal and a challenge to chemists and engineers to develop a profitable use for the material."

N.P.T.A. Entertainment Plans

NEW YORK — Special entertainment is being planned for the ladies on the occasion of the annual convention of the National Paper Trade Association, at the Waldorf-Astoria, in New York, on March 27, 28 and 29. Members' wives, the feminine members of their families, and their guests will be invited to attend a luncheon and fashion show at the Tavern-on-the-Green in Central Park, New York, March 28.

Ohio TAPPI and Sup'ts. To Meet

CHICAGO — Kon Matchuk, Maxwell Paper Co., Franklin, Ohio, chairman of the Miami Valley Div. of The American Pulp and Paper Mill Superintendents Assn., Inc., reports that the next meeting of the Division will be on February 9 at the Manchester Hotel, Middletown, Ohio. This will be a joint meeting with Ohio TAPPI Mr. Matchuk also reports that on March 9, 1950, the Division will visit the O. H. Hutchings Power Station of the Dayton Power and Light Co.

Nordstrom Named Sec. of N.P.B.M.A.

NEW YORK—Gustav L. Nordstrom was appointed secretary of the National Paper Box Manufacturers Assn. to succeed the late William R. Kreeger, at a special meeting of the board of directors of the association held in Philadelphia, January 10. Mr. Nordstrom joined the association as assistant secretary in May, 1948, and was acting secretary following the death of Mr. Kreeger on December 11. He has been identified with the setup paper box business and supplies trade since 1936 when he joined the Seeley Tube and Box Co., then located in Newark, N. J. Three years later he became associated with a manufacturer of box papers and in 1942 joined the Armed Service, being discharged in 1946 as a major in the U.S. Marines.

G. L. NORDSTROM

Southeastern Paper Trade Meets

RICHMOND, Va. — The Southeastern Paper Trade Ass'n., an organization of paper distributors and merchants of Virgima, North and South Carolina, held a one-day meeting on January 20 at the Hotel Jefferson.

1950 ANPA Convention

NEW YORK — The 1950 American Newspaper Publishers Ass'n. convention will be held Tuesday, Wednesday and Thursday, April 25, 26, and 27, at the Hotel Waldorf-Astoria, New York 22, N. Y. A conference on labor matters is scheduled for Monday, April 24.

Southern Forestry Conference

JACKSONVILLE, Fla. — The program of the Southern Forestry Conference of 1950 to be held February 17-18 has the theme "Southern Prosperity from Growing Trees." Marcel Leloup, head of forestry work in the Agriculture Organization of the United Nations, will give the keynote address. W. M. Oettmeier, president of the Forest Farmers Assn. and the conference sponsor, will call the meeting to order. His address will point out the regional aspects of good forestry and tie Southern forestry into the national and international picture.

Industrial leaders who will speak February 18 will be B. E. Allen, assistant general manager of Union Bag and Paper Co., on "Pulpwood;" F. V. Doutt, chief chemist, Champion Paper and Fiber Co., on "Chemical Utilization;" Justin R. Weddell, public relations director, St. Regis Paper Co., on "Promoting Wood and Forest Products."

Over 300 men, half of whom were mill men, attended the 46th annual reception and dinner of the Paper Trade Association of Philadelphia which was held at the Down Town Club, January 11, the program included addresses by President Frederic S. Balch, and Byrum Saam, outstanding Sportscaster for Atlantic Refining Co. President Balch acted as Chairman & toastmaster, introducing the speaker of the evening Byrum Saam. New president, Butler Smythe, awarded President Balch, outgoing president, a scroll on behalf of the Board of Governors and the members of the association, expressing their appreciation of the untiring efforts and valuable services as President of the association during the years 1948-49.

MERCHANTS

Garrett-Buchanan Holds Annual Party

PHILADELPHIA—On Friday evening, January 13, Garrett-Buchanan held its annual "get together" at The Barclay, East Rittenhouse Sq. All employes from Reading, Lancaster, and Baltimore joined the Philadelphia group, as has been their custom for the last twelve years. President Morgan H. Thomas celebrated his 50th year with the company during their 1949 celebration. He was the first to start the "Fifty Year Club." Edward P. Hickey, of Lancaster; J. Edward Conroy, of Reading; William D. Mulhern and Edward Peterson, both of Philadelphia, received their gold onyx signet ring upon their entrance into the "Twenty-Five Year Club." There are now forty-four in this group.

SUN "JOB PROVED" PRODUCTS CUT COSTS,

Sun products have been "Job Proved" in the lubrication of almost every type of mining, manufacturing, power, and transportation equipment . . . in refrigeration and air-conditioning . . . in metal cutting, tempering, and quenching . . . in the processing of textile fibers, leather, natural and synthetic rubbers . . . in the impregnation of electrical, electronic, and packaging materials of many kinds.

To help you solve your production problems, Sun Oil Company offers a wide selection of "Job Proved" petroleum products, plus the experience of Sun Engineers. Their know-how and detailed product information are yours for the asking. Call your local Sun office, or write Dept. PT-1.

SUN OIL COMPANY • PHILADELPHIA 3, PA.

In Canada: Sun Oil Company, Ltd., Toronto and Montreal

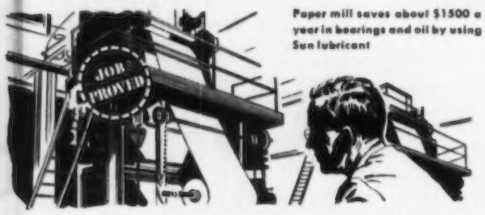
INDUSTRIAL OILS

SUNVIS 900 OILS—High-viscosity-index, paraffinic-type oils—of uniform O F pour point—fortified against rust, corrosion, oxidation, and sludge. The finest available lubricant for turbines, hydraulic systems, and similar applications.

SUNVIS HT 700 OILS—High-viscosity-index oils containing additives which minimize oxidation and give detergency. Ideal lubricants for internal combustion engines subjected to continuous heavy loads under the most adverse conditions.

SUNVIS OILS—Solvent-refined paraffinic-type oils of uniform high viscosity index, low pour point, and low carbon content. Especially suitable for application to long-time use in all types of industrial reservoirs and circulating systems.

DYNAVIS OILS—Low-pour-point, high-viscosity-index, inhibited oils, containing an additive which helps prevent formation of harmful corrosive and sludge-forming acids. Well suited for engines fitted with alloy bearings and operated at high temperatures.



Paper mill saves about $1500 a year in bearings and oil by using Sun lubricant

SOLNUS OILS—Well-refined straight mineral oils. Stand up under hard use for long periods of time. Recommended for use in machine tools, air compressors, certain types of diesels, etc.

CIRCO OILS—Used for general lubrication of industrial machinery when straight mineral oils are required.

SUNTAC OILS—100%-petroleum products which have been compounded to increase their adhesiveness. Recommended for general lubrication of all machines subjected to sudden shocks and load reversals. Cling to the parts to be lubricated.

STEAM CYLINDER OILS—High flash and fire point lubricants for either saturated or superheated steam conditions and for worm-gear speed-reduction units.

SUN CAR JOURNAL OILS—Dark oils meeting A.A.R. Specifications. For use in waste-packed bearings of railroad equipment.

SUN DELAWARE OILS—Dark oils for general lubrication on older types of industrial machinery.

SUNOCO WAY LUBRICANT—For use on tableways. Eliminates chatter and scoring . . . resists corrosion. Has good metal-wetting and adhesive properties, ample viscosity, and E. P. qualities.

SUN MARINE ENGINE OILS—Compounded with special emulsifying agents in order to provide adhesion to, and lubrication of, working parts in the presence of water. For the lubrication of bearings, eccentrics, crossheads, and various other parts of steam engines.

ROCK DRILL OIL—High-film-strength adhesive oil. For use in jackhammers, stopers, drifters, and similar equipment.

INDUSTRIAL GREASES

SUN CUP GREASES—Water resistant. For grease-cup and grease-gun application when service is normal.

SUN GUN GREASES—Smooth greases made with medium-viscosity oil. Stable under pressure in power and booster guns.

ADHESIVE PRESSURE GREASES—Won't drip or splash. Excellent lubricants for open-gear applications.

SUN DARK PRESSURE-SYSTEM GREASES—For power-driven central grease lubricating systems in heavy industries. Also used as a "medium cup grease."

SUN MINE CAR GREASES—Available in several grades. Suitable for both antifriction bearings and plain-bearing cavity-type wheels.

SUN MINING MACHINE LUBRICANT—Semifluid. For use where a light but adhesive grease is required. Resists separation and decomposition.

Chemical plant saves about $8000 per year by adopting Sun Pressure Grease

SUN ROLLER BEARING GREASES—For use on electric motors and generators and high-temperature machinery equipped with ball or roller bearings.

SUN GEAR COMPOUNDS—Black adhesive open-gear compounds and

"JOB PROVED" IN EVERY INDUSTRY

SUN PETROLEUM

SPEED PRODUCTION, IMPROVE QUALITY

wire-cable greases. Recommended for power presses, mining machinery, worn reduction mills, crushers, pump gears, etc.

SUNOCO TRACTOR ROLLER COMPOUND—For crawler-type tractors. Provides good lubrication with exceptional sealing qualities.

METALWORKING OILS

SUNICUT—Straight (non-emulsifiable) transparent cutting oils. Recommended for automatic screw machines and heavy-duty machining operations. Permit high speed production with excellent finishes, long tool life.

SUNOCO EMULSIFYING CUTTING OIL—A self-emulsifying oil which produces a stable white emulsion. Efficient and economical cooling and lubricating medium for turning, milling, drilling, and other metalworking operations on both ferrous and nonferrous metals. It is also an excellent grinding coolant.

SUN QUENCHING OILS—Specially refined oils designed to aid development of maximum physical properties in a wide variety of steels.

SUN TEMPERING OILS—Specially refined oils for tempering steel. Because of their low carbon content and stability under heat, these oils have an unusually long service life.

Machine shop uses Sunicut 209 W as a cutting and lubricating oil —saves up to $1000 a year

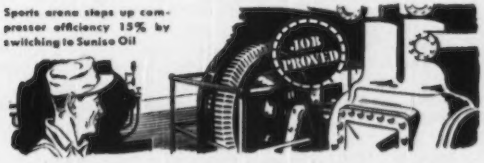
SUN ROLLING OILS—Straight and emulsifying oils which will permit maximum production in rolling steel, aluminum, brass, and copper.

SUN ANTI-RUST COMPOUNDS—Petroleum-base oils with chemical additives designed to prevent the rusting and corrosion of steel.

REFRIGERATION OILS

SUNISO REFRIGERATION OILS—Have extremely low pour points, extremely low wax-separating characteristics, a high degree of stability and long life. Initially neutral and resistant to formation of detrimental acids under service conditions. Suniso Oils are high quality oils suitable for both high- and low-temperature operations. The most widely used oils in refrigeration and air-conditioning.

Sports arena steps up compressor efficiency 15% by switching to Suniso Oil



TEXTILE-PROCESSING OILS

SUNOTEX TEXTILE OILS—Designed to impart certain additional properties to various forms of fibers during their processing from the fiber state into a manufactured product. All Sunotex textile oils are emulsifiable in water. Highest rating in fadometer tests.

SUN COTTON CONDITIONING OILS—Pale mineral oils which condition the cotton. They prevent waste by cutting down excessive amounts of "fly" (fine air-borne lint particles).

Worsted mill obtains easier scouring, better quality, larger yield with Sunotex WO-220

SUN ASBESTOS FIBER CONDITIONING OIL—Used for spraying on the asbestos during processing. Fibers are kept from being damaged or broken down, and harmful dust is minimized when this product is used.

SUN CORDAGE OILS—Generally used alone, but are adaptable to various formulas used by cordage manufacturers. Selected products, highly compatible with additives.

RUBBER-PROCESSING AIDS

CIRCOSOL-2XH—An elasticator and processing aid for natural rubber and especially for GR-S. Outstanding for sponge rubber.

CIRCO LIGHT PROCESS AID—A processing agent and excellent softener for natural rubber, natural rubber reclaims, and neoprene synthetic rubber. Used for GR-S to some extent.

SUNDEX-53—An inexpensive product suitable for processing GR-S and blends of GR-S and natural rubber. An established processing aid for rubber footwear stocks and semihard rubbers.

Rubber plant cuts out production step, eliminates wrinkles and rejects with Circosol-2XH

CIRCOMAR-5AA—A black-colored product for processing natural and GR-S rubber used in tire-making. Also used in reclaiming natural-rubber scrap. Replaces asphalt fluxes. Free-flowing at room temperature.

WAXES

Sun's new wax plant was completed in 1949. Its many refining innovations and extreme flexibility permit new types of waxes to be manufactured in large quantities—a procedure heretofore impracticable. A wide range of fully refined paraffin and microcrystalline waxes will be "tailor-made" to meet the requirements of virtually all major industrial applications. Pilot plant samples of several grades are now available.

MISCELLANEOUS INDUSTRIAL PRODUCTS

SUN SOLVENTS—Sun Spirits for the thinning of paints, varnishes, and enamels, and for metal-cleaning . . . a pure, water-white petroleum solvent free of corrosive sulphur. Other Sun solvents with special properties are available for the chemical industry.

SUN LEATHER OILS—Mineral-base leather oils. Used for obtaining the desired tensile strength, proper temper, and controlled moisture content. Maintain a light even color . . . mix well . . . distribute evenly.

"JOB PROVED" IN EVERY INDUSTRY

PRODUCTS SUNOCO

Another high spot of the evening was the presentation of a watch to Mrs. Louise Kruger, who was retiring as of January 13. Mrs. Kruger has been associated with the Philadelphia office for over twenty-four years. The presentation was made by the general manager, George W. Weaver.

Blake, Moffit & Towne Names Abbott

FRESNO, Calif. — Appointment of Maurice V. Abbott as salesmanager of Blake, Moffitt & Towne has recently been announced. Joining the Blake,

MAURICE V. ABBOTT

Moffitt & Towne organization some five years ago, Mr. Abbott had several years' business and sales experience in the utility and insurance fields. He learned the paper business as a trainee, following which he was placed on one of the company's important sales territories which included many of the larger accounts in downtown Fresno.

Castle & Overton Named By Hurum

NEW YORK—Castle & Overton, Inc., have been appointed sole agents for A/S Hurum Fabriker of Norway. The mill, which has produced unbleached kraft pulp for many years, has recently completed the installation of a modern bleaching plant to manufacture a high quality of bleached kraft. It is expected that trial shipments will shortly be available at the going price for bleached krafts in this market. The mill is located on tide water with year around shipping facilities.

CONVERTERS

Bryant Resigns from BenMont

BENNINGTON, Vt. — Paul M. Bryant has resigned as manager of the drapery division of BenMont Papers, Inc.

To Use Only Paper Milk Containers

SPRINGFIELD, Mass. — Resisting an ultimatum from chain stores that they will handle glass milk bottles no longer, local milk processors appear to be waging a losing battle against the encroachment of paper milk containers.

Because of the bother collecting and refunding nickels for bottles, the chain stores have served notice on processors that they will handle only milk put up in paper containers, but the heavy expense and alleged slowness of paper milk bottling machines is setting up a fierce resistance by bottling companies.

Gets Ammunition Container Contract

OGDENSBURG, N. Y. — The Cleveland Container Co. of Ogdensburg has been awarded a $475,000 contract for 500,000 fiber ammunition containers, it has been announced by the Army.

C. R. Palmer, assistant manager of the plant, stated that there would be "no startling increase in employment" but the new order "will assure continuous operations through the first half of the year."

Hopper Gives to Hospital Fund

RICHMOND, Va.—The Hopper Paper Co. has presented a subscription of $7,500 to the building fund of the new Richmond Memorial Hospital, according to an announcement by Overton Dennis, chairman of the committee on corporation subscriptions of the $5 million fund.

L. P. Littell Retires From Bemis

ST. LOUIS, Mo. — The retirement of L. P. Littell from the Salt Lake City sales office of Bemis Bro. Bag. Co. has been announced, effective on January 1. Mr. Littell has had over 40 years of service with Bemis, having joined the company at its Omaha plant in 1909.

Riverside Addition Nears Completion

APPLETON, Wis. — The construction of a $38,000 addition to the converting department of the Riverside Paper Corp. is expected to be completed by February 15, according to Edward C. Hilfert, vice-president and general manager of the firm. The addition consists of a basement and first floor, and contains about 15,000 square feet.

One of the Insulite machines at the Minnesota & Ontario Paper Co. plant at International Falls, Minn., will be shut down Tuesday for about five weeks under a modernization program.

We Regret

In reporting on the progress of Azon Corp., Binghamton, N. Y., in the December 20th issue of PAPER TRADE JOURNAL, it was stated that the firm now has a paper coating machine capable of turning out more than 1,000 linear yards of sensitized paper a month. This should have read "one million" linear yards.

Beach Products Names Smith & Lane

BOSTON—Smith & Lane Co. has been appointed representative of the Beach Products Co., Kalamazoo, Mich., manufacturers of decorated paper items, including cocktail napkins, paper plates and table service items.

Van Alstine Represents MacLaren

GLENS FALLS, N. Y. — The MacLaren Paper Co. has announced the appointment of W. N. Van Alstine & Sons as its exclusive selling agents in eastern and central New York.

FORESTRY

Add Forest Crop Timberland

SUPERIOR, Wis.—Application to enter an additional 2,334 acres of timberland under forest crop law was filed with the conservation department at a hearing January 14, at the court house, conducted by F. G. Wilson, superintendent of cooperative forestry. The land is located in the towns of Brule, Dairyland, Gordon, Solon Springs, Summit and Wascott. Douglas county leads the state in number of acres under forest crop supervision with 230,161 acres entered.

Barricading Logging Roads

DULUTH, Minn. — Timber operators "should not be criticized for attempting to protect the public" by barricading logging roads, Galen Pike, forest supervisor, said January 6 in a three page letter answering the St. Louis county board's charge that roads were being blocked by barriers to keep the public from knowing what was going on. County Commissioner R. Floyd claimed loggers were stripping the forest.

Pike pointed out that some logging roads are so dangerous that even logging service trucks are prohibited from using them.

N. B. Sells Crown Lands Timber

OTTAWA—The novel plan for the sale of timber from Crown lands in New Brunswick is attracting attention at a Crown land timber auction, a Perth forest products operator purchased with a bid of $4,000 the first license offered under the new plan.

License covers a two square mile area at Tilley Settlement. Under the terms of the plan only trees marked by the Department of Lands and Mines can be cut. The same policy will continue throughout subsequent license years, however, if a licensee wishes to cut smaller trees, he must apply for an "undersize permit."

Urge Use of Trained Foresters

AMHERST, N. S. — Starting with a theme of "How a pulpwood operator can practice better forestry" the Maritime Section of the Canadian Society of Forest Engineers ended the discus-

SANTOSITE... economical method of semi-chemical pulping

Santosite (Monsanto's sodium sulfite anhydrous, technical) is an economical, safe, easy and efficient means of semi-chemical pulping. It is the *mild* pulping agent for hardwood, mixed wood, flax, hemp, ramie and many cellulose-bearing agricultural residues.

With hardwoods of high lignin content and with mixed woods, Santosite delivers a good yield of pulp having a relatively long fiber. Because of its mild action, Santosite does not destroy fiber in the process of delignification. Santosite solves the special problems that hamper ordinary methods of pulping hemp, flax and ramie. It pulps straw, cornstalks and other agricultural residues to make a variety of quality products.

Santosite is safe and easy to use. It is clean . . . non-toxic . . . non-irritating to workmen. And, even in small quantities, it is highly efficient.

Mail the coupon today, or contact the nearest Monsanto Sales Office, for specifications and prices. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1764-A South Second St., St. Louis 4, Mo. *Santosite: Reg. U. S. Pat. Off.*

DISTRICT SALES OFFICES:
Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle.

In Canada,
Monsanto (Canada) Ltd., Montreal.

MONSANTO
CHEMICALS — PLASTICS

MONSANTO CHEMICAL COMPANY
Organic Chemicals Division
1764-A South Second Street, St. Louis 4, Missouri

Please send me specifications and prices on Monsanto Santosite.

Name ..... *Title* .....

Company .....

Street .....

City ..... *Zone* ..... *State* .....

SERVING INDUSTRY . . . WHICH SERVES MANKIND

sion by coming to bat for scientifically trained men in the industry in their annual meeting which wound up here recently.

Opinion of the group was that the profit motive is after all the motivation behind all business and therefore a way must be found to put into effect better forestry practices without cutting down on profit. The solution put forward was that young men with scientific training, imagination and ability to apply their knowledge in practice under capable experienced foremen are the ace in the hole of the industry.

As a result of this decision, the group will seek out heads of the industry with a view to encouraging them to hire graduates of the Maritime Ranger School and other forestry training centers. The material is readily available as the Ranger School is supplemented by the University of New Brunswick which is considered in many circles, the Country's top training ground for forestry men.

Winding up the discussion, the group brought out that too many newcomers into the industry are seeking white collar jobs in an industry which is primarily a non-white collar outfit and that industry could be more generous in passing on any developments which individual members make.

Claims Canadian Firms Hold Monopoly

FORT WILLIAM, Ont.—"A vicious monopoly" is enjoyed by the pulp and paper industry in Ontario's forests, E. E. Johnson, president of the Great Lakes Lumber and Shipping Co., Ltd., said in an address to the Natural Resources Development Board on January 11.

"If the government persists in conniving with the pulp and paper interests to keep everybody out of our forests so that that industry can carry out a single-purpose operation, it will deal a terrible blow against all who live here and have been building their hopes on a belief that we are in for a period of lively development," he said.

He claimed sole salvation of the sawlog problem, which has already reduced sawmill operations from 3,000 men to 300 and to an estimated 100 men by April, lay in implementation of the Kennedy report.

The 1947 royal commission on forestry prophecy that within two years some of Ontario's sawmills would have to close because of strangulation, he said, was already coming to pass. Two lakehead sawmills will close at the end of the present season and "many others" would close in the near future.

By 1953, when action could be taken, "the dying sawmill industry at the lakehead will be decently buried beyond any hope of resurrection and the sawlogs which would be manufactured into reasonably priced housing will go to the pulp and paper industry by default."

F. T. C. Reports Profits

Rates of Return (After Taxes) on Stockholders' Investment, 1940, 1947 and 1948
528 Identical Corporations in 25 Selected Industries
(Adjusted to Exclude Reported Accelerated Depreciation on Postwar Facilities)

Industry	Number of Corporations	Rate of Return After Taxes 1940 (percent)	1947 (percent)	1948 (percent)
Primary Smelting & Refining Nonferrous Metal	19	10.6	14.2	15.0
Blast Furnaces, Steel Works, Rolling Mills	34	8.1	11.8	14.3
Floor Covering	16	8.3	15.1	16.4
Wool Carpets & Rugs	11	8.9	14.7	17.3
Linoleum & Felt Base	5	7.6	15.5	15.7
Petroleum Refining	41	6.7	14.5	19.4
Motor Vehicles & Motor Vehicle Equipment	58	17.1	19.6	24.1
Motor Vehicles	18	17.3	19.6	25.0
Motor Vehicle Equipment	40	15.8	19.3	20.5
Tires and Inner Tubes	16	9.0	15.3	13.8
Industrial Chemicals (including Rayon)	35	13.8	17.3	19.0
Industrial Chemicals	28	14.4	17.1	18.7
Rayon	7	8.6	18.7	21.4
Matches	3	5.3	11.6	8.7
Flat Glass; Glassware (Pressed or Blown)	11	11.7	15.3	15.1
Paper & Allied Products	104	9.6	21.1	18.2
Tobacco Products	20	13.8	11.6	13.1
Cigarettes	8	14.7	11.9	13.5
Cigars	9	8.7	10.2	8.6
Plug, Smoking & Snuff	3	10.0	8.0	11.2
Soap, Cleaning & Polishing Preparations	8	17.5	22.9	18.2
Electrical Machinery, Equipment & Supplies	66	14.2	19.6	18.6
Bakery Products	26	8.1	18.0	18.3
Bread	21	7.6	16.1	19.8
Biscuits & Crackers	5	8.8	19.6	17.0
Tin Cans & Other Tinware	6	9.4	10.3	11.5
Abrasives, Asbestos, & Misc. Non-metallic Mineral Products	16	13.9	15.8	17.3
Dairy Products	19	9.4	13.2	12.4
Office & Store Machines & Devices	15	13.2	24.9	23.9
Engines & Turbines	15	13.1	6.2	17.4
	528			

WASHINGTON, D. C. — Paper and allied products, with a rate of return of 21.1 percent in 1947 and 18.2 in 1948, were among the industries showing a decline in returns to stockholders in those years, the Federal Trade Commission reported to Congress this week.

The report is one of a series which the Commission has made, covering rates of return, after taxes, on stockholders' investments in 25 selected manufacturing industries. This report covers the 1940, 1947 and 1948 periods. The report is based on returns from 528 identical manufacturing corporations in the various industries.

In 15 of the 25 industries surveyed, returns were higher in 1948 than in 1947. In contrast to the showing for the paper and allied products field, between 1947 and 1948, the report showed on the other hand, that for 1948, as compared with 1940, paper and allied products were among those showing the greatest increases in their profit rates. In the case of the paper and related products industries, the increase was from 9.6 percent to 18.2 percent between 1940 and 1948, said the Commission.

Editorial Comment

To complete the above story and for comparative purposes, the A.P.P.A. Capitol and Income Survey 1949 shows:

	1940	*1947*	*1948*
Percentage of Net Worth	8.0	18.0	15.8
Dividends	—	5.5	6.2
Percentage of Sales	8.1	10.9	9.7
Dividends	—	3.3	3.8

This slight difference between A.P.P.A. and F.T.C. figures is due primarily to sampling, and paper products being included in F.T.C. Report. The decline of profits in 1948 from 1947 is due almost directly to the slightly lower operating ratio.

Col. Howard Commands NYQMPA

NEW YORK — Colonel Robert A. Howard, Jr., became Acting Commanding Officer of the New York Quartermaster Procurement Agency, effective January 9, with the departure of Brig. General L. O. Grico to his new command at the Jeffersonville (Indiana) Quartermaster Depot and pending the arrival of the new Commander of the Agency, Brig. General Howard L. Peckham.

Is the Northeast Headed for Federal Power and Water Control?

By HENRY J. PERRY
Editor, Paper Trade Journal

Once again attention is focused upon recurring floods and water shortages by the plight of too little in New York City and too much in Illinois.

A recent Interior Department report shows: "New York's streams are not drying up . . . that there have been large fluctuations in flow from year to year but these flows during the past decade in general have not been greatly different than those of the first decade of the century. . . . Survey engineers find that while generally the problems are engineering and economics rather than occasioned by actual deficiency of water and while they are local in nature rather than wide spread, the over-all situation must not be ignored."

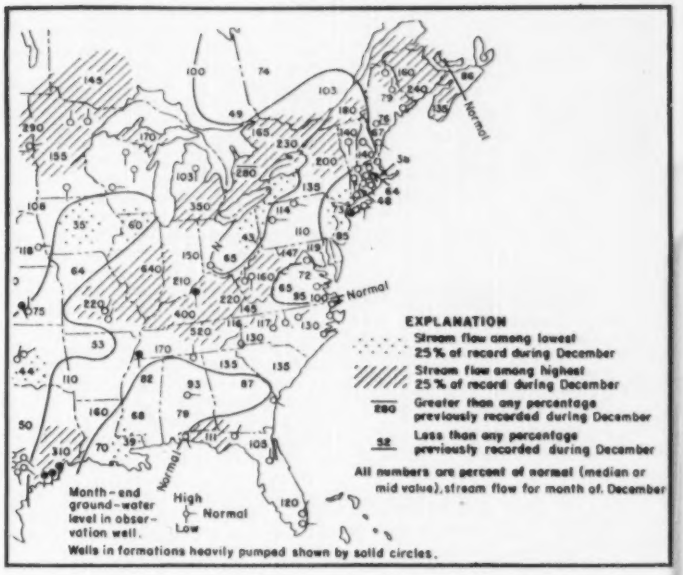
The attached water map of December 1949 shows the stream flows and groundwater levels in the eastern half of the United States and points up the local conditions.

Basically, water supply and its shortage is a problem of utilization, storage in times of peak flow, release of storage in times of need. Controlled streams add unmeasurable benefits to the areas through which they flow. Flood damage is reduced, stream pollution can be more uniformly controlled, irrigation is possible, and employment stabilized to say nothing of increased recreational facilities and more uniform potable water supplies.

The major bone of contention between many factions of the water control advocates is power politics. The ideal water storage sites are also hydroelectric power generating sites. Thus we find that when private water storage or conservation projects are proposed, the political cry "Power Grab" is raised.

Regardless of crimes both proven and alleged by power companies in the past, they have rendered a notable service from a water storage standpoint. Many will point out that this problem is larger than private enterprise and tnat it is a matter for state action. The supporters of this position have much in their favor, so long as administration and control remains a water shed interest, and not operated by remote control in some uninterested bureau.

The act of the New York Legislature some years ago in passing enabling bills for the formation of the Black River and Hudson River Regulating Boards is a case in point. These local boards, composed of water shed residents, well versed in local conditions, have done an outstanding job in river regulation at no cost to the taxpayer nor to those who indirectly benefit.


EXPLANATION
Stream flow among lowest 25% of record during December
Stream flow among highest 25% of record during December
280 Greater than any percentage previously recorded during December
58 Less than any percentage previously recorded during December
All numbers are percent of normal (median or mid value), stream flow for month of December
Month-end ground-water level in observation well.
High
Normal
Low
Wells in formations heavily pumped shown by solid circles.
Normal

Stream Flow and Ground Water in Relation to Normal, December 1949.

The boards as official state bodies are composed for the most part of successful businessmen, elected public officials of local municipalities, representing manufacturing, power, and public interest. They have the power to issue bonds, control flow, build various engineering works, and to receive and disperse public moneys.

The moneys used are raised as taxes not from the general taxpayer but exclusively from those who own the power sites and gain direct financial benefits.

Those who indirectly benefit from flood control, better fishing, recreational use, more uniform and potable water supplies do not contribute to cost in any way. More important, they reap the dividends of more stable employment in their valleys.

In contrast, review the flood control works of New England particularly those of the Connecticut and Merrimack Rivers. Mammoth dams are empty in summer and at other dry times. Power supply widely fluctuates, rates are high. Shut downs and lay offs occur with discouraging frequency. The taxpayer pays the bill from which no return is received other than occasional flood control for no power is generated from these works. Let New Yorkers and New Englanders act now to improve this water condition with foresight and vigor, reaping benefits such as those in the Black River Valley. Remember that if they do not band themselves together now, the Federal Government will be only too glad to take over, with little or no assistance needed from those most vitally concerned. There is plenty of precedent for New England and New York to run their own affairs. Gypsy Moth control, the Forest Fire compact, the New England Pollution Control compact, all are examples of interstate cooperation.

The Backdoor Approach to New England Power Authority

WASHINGTON, D. C. — New England's water resources in terms of hydroelectric power potential, conservation, anti-pollution control, navigation, etc., would be subjected to detailed study under a bill introduced in the Senate by Senator Theodore Francis Green, Dem., of Rhode Island.

While this is the second time the Senator has introduced this bill, it is being treated with considerable interest here, because it followed almost immediately a suggestion in the President's message to Congress for a Water Resources Board, and follows closely the lines of the Kerr bill which paved the way for the Southwestern Power Authority. The latter is an Administration-approved bill. Senator Green's proposal, while it has not technically cleared the hurdles that would stamp it as Administration-approved, has been discussed with Interior Department officials, and was introduced with their full knowledge of what it was intended to do.

The stated purpose of the Green bill, S. 2847, is "to aid in the use, conservation and development of the natural resources of the river basins in the New England States, and to establish the New England River Basin Survey Commission."

Because of Senator Green's close association with Administration plans and programs, the bill is being construed in some quarters as offering a possible foot in the door for a New England valley authority. As seen in this light, the so-called survey commission's work is merely a preliminary. In fact critics have raised a question as to whether these "surveys" are not a new approach for establishment of additional power authorities, and related developmental activities. In this guise, they offer an intermediate approach to such a goal, rather than as formerly, directly seeking legislation which states its purpose as the creation of a valley authority in any particular area. The argument is that the survey method softens the impact of the proposal. Whether this is the case with Senator Green's bill, it can be pointed out that the ground to be covered has already been explored by both Federal and State surveys, not to mention private sources; how much hydroelectric energy may be latent in New England, what would be the cost of its development for active industrial use, rates, and other matters.

Actually, as the bill reads, such a commission would go into, and presumably make recommendations as to anti-pollution measures in New England waters, navigation and flood control, water conservation, forest conservation, protection and enhancement of wildlife and recreational resources, soil conservation, and others.

Another requirement would be "to formulate within a fixed time, a basic, comprehensive, and integrated plan of development" of land and water resources in the several New England states, which would be submitted to the President.

Work required under these various schedules would be performed by the going divisions of Federal departments in Washington. In this connection, the earlier Green bill provided for six commissioners from the New England states; the present measures calls for one such commissioner. Other representatives would be delegated from the Federal Power Commission, Interior and Agriculture Departments, Army engineers; and an advisory group to be appointed by the governors of the New England states.

Water and power made available under any subsequent program would be furnished with preference given to public bodies and cooperatives, under this bill. The Commission would report within two years of its establishment, on a complete program as specified in the bill.

States whose water resources would be covered include specifically Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut.

Flood Repair and Control Appeal

BOSTON—Remaining of the $2,000,000 bond issue authorized by the 1949 Legislature for flood repairs and control work in Berkshire, Hampshire and Hampden counties is about $43,000, which Joint Ways and Means Committee was informed by Public Works Commander William F. Callahan could be very advantageously used in riprapping, highway and bridge work, chiefly in Berkshire County. Right to use this money expired last December 31 and hence it must be reappropriated.

Of the balance on hand, about $29,000 is in the funds set aside for stream clearance, and about $14,000 for highway work. About $100,000 was expended in excavations of the Housatonic River and about $25,000 in like work in the Hoosick River, Commander Callahan said. Riprapping was not permitted under the bill, but much good could be done if such were permitted, in using part of the balance. There are five bridges still under construction, Callahan said, and until they are completed, exact balance will not be known. Further stream clearance, highway and bridge work is still needed. He said that Great Barrington, Mass., had been very cooperative in this work, and he is willing to replace a Bailey-type bridge in that town that was washed away.

He told of aid given a paper mill in Stockbridge and three concerns in North Adams from flood damages. He appealed for part of the remaining funds to be appropriated for Chapter 90 works, which would mean matching state funds by county and municipality.

Spur Federal Flood Control Project

NORTH ADAMS, Mass.—Damage by floods of nearly $5,000,000, mostly to paper businesses, during the last 13 years has been reported by 22 cities and towns in the Housatonic river watershed of southern Berkshire.

County commissioners drew up the report at the request of Rep. John W. Heselton to spur chances for a federal flood control project there. Beginning with the flood of 1936, and taking figures from state reports, the commissioners have estimated a total damage of $4,913,700 from that year through the flood of a year ago.

The 1949 New Year's flood caused damage of $2,665,035 to the Housatonic watershed communities in addition to $238,000 for the cost of stream clearance and repairs to the state highways. Great Barrington was the hardest hit, estimating its damage from that flood at $1,352,000.

Another New England Power Survey

BOSTON—The Boston *Herald* reports that Governor Diver has conferred with Federal officials about the possibilities of developing New England's hydroelectric potentialities. He added there was a general lack of evidence in the report made by the New England Council a year ago. The Governor said he had discussed the possibilities with C. Giraid Davidson, Assistant Secretary of the Interior, who was extremely happy with the cooperative attitude of the present governors of New England toward the investigation by a commission of the hydroelectric potentialities.

A resolution will be introduced by Senator Green (D., Rhode Island) calling for such a study by the Army Engineers Federal Power Commission and Departments of Interior and Agriculture.

The Green resolution differs from the Senator Lodge (R., Mass.) resolution which called for a study by Army Engineers alone.

More Newsprint For British Election

LONDON, England—The Labor Government has granted newspapers an increase of newsprint averaging one page an issue for four weeks during the general election period for carrying election news and announcements.

HOW FAR CAN YOU GO IN USING *Stainless Steel* TO CUT COSTS?

THAT's a question that probably is impossible to answer specifically . . . it almost seems as if the sky is the limit. But generally, you can be guided by these rules:

Use Stainless Steel wherever you need exceptional resistance to sulphides, sulphates and other highly-corrosive conditions . . . use Stainless Steel at every point where there is danger of stock discoloration . . . use Stainless Steel wherever you need strength with light weight . . . use Stainless Steel wherever equipment must be subjected to extremes of heat and cold.

Every day, as new equipment is installed or old equipment is modernized, more and more stainless steel is being used with impressive results. In digester linings, evaporators, blow-off valves, heat exchangers, beater bars and bed plates, jordan shells and plug fillings, fourdrinier frames and rails, head boxes, wire sections, save-alls, etc., stainless steel has consistently saved money by reducing stock losses . . . by decreasing maintenance costs . . . by greatly prolonging life.

That's why it will pay you to examine critically *every* replacement or addition of equipment in terms of Stainless Steel.

For Stainless that will give you the best in performance, be sure that your fabricator uses U·S·S Stainless Steel. U·S·S Stainless is available in such a wide variety of forms . . . sheets, strip, plates, pipe, tubing, wire . . . and in a complete range of compositions and finishes that it permits the fabricator the widest latitude in design and the use of the most advanced fabrication techniques. To you, the equipment user, this means the best Stainless Steel performance you can obtain.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO · CARNEGIE-ILLINOIS STEEL CORPORATION, PITTSBURGH & CHICAGO
COLUMBIA STEEL COMPANY, SAN FRANCISCO · NATIONAL TUBE COMPANY, PITTSBURGH · TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST · UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

D-143

UNITED STATES STEEL

Excerpts From January Pulp, Paper and Board Industry Report

By

W. LEROY NEUBRECH

Chief Pulp and Paper Section, Forest Products Division, Office Domestic Commerce, U. S. Department of Commerce

Economic Review

Prospects are excellent for an aggregate domestic paper and board production in 1950 of 21 million tons or more. In 1948, when all records were broken with an output of nearly 22 million tons, it is known that a very substantial quantity went into pipe line inventories. In 1949, production was near or slightly above 20 million tons, according to a preliminary estimate of the Pulp and Paper Section, Office of Domestic Commerce, but there was a large withdrawal from inventories for consumption during the first three quarters of the year, followed by some necessary stock replenishments in the last quarter. It appears that actual consumption of domestically produced paper and board in 1948 and 1949 was fairly constant at around a level of 21 million tons, taking into account exports of about 300 thousand tons in each year.[1] This correlates with the trend of the gross national product which was approximately $262.4 billion in 1948 and $258.7 billion in 1949, and with national personal consumption expenditures of $178.8 billion in 1948 and $178.5 billion in 1949. This observation is significant because it has long been known that actual paper and board consumption follows closely the level of gross national product, and even more closely personal consumption expenditures in the United States.

Personal Consumption Expenditures
Percent Distribution

	Total	Durables	Nondurables	Services
1929	100.0	11.9	47.8	40.3
1939	100.0	9.9	52.3	37.8
1945	100.0	6.9	60.8	32.3
1946	100.0	11.2	58.7	30.1
1947	100.0	13.2	57.6	29.2
1948	100.0	14.1	55.2	29.7
1949[2]	100.0	13.9	54.7	31.4

[1] In addition to U. S. consumption of domestically produced paper and board there is a consumption of imports, principally newsprint, amounting to approximately 4.6 million tons in 1948 and an estimated 4.7 million tons in 1949.

[2] Estimated by Council of Economic Advisers

With regard to the consumption of paper, board and its products the trend in the nondurable field is especially significant. In 1929 personal consumption expenditures for nondurable goods, consisting primarily of food and clothing, amounted to 47.8 percent of total expenditures. This percentage increased to 52.3 in 1939. During the war, when consumer durable goods became very scarce on the market, nondurables advanced to a high of 60.8 percent of the total in 1945. Since then, the percentage of personal consumption expenditures for nondurables has declined steadily to an estimated 54.7 percent in 1949. During the postwar period, the percentage spent for durables such as automobiles, appliances and furniture advanced from 6.9 percent in 1945 to an estimated 13.9 percent in 1949. The percentage of total expenditures for services has remained fairly constant in the past several years but is substantially below the ratio of 1929.

The January report to the President by the Council of Economic Advisers points out that there is expected to be a further working off of the backlog demand for certain durable goods, but that a lifting of standards of living would probably increase the share of expenditures on durable goods above that of the pre-war years. The smaller percentage of consumer expenditures for nondurables has been a factor of at least moderate significance to the paper and board trade in 1948-1949, and probably also will be for 1950.

In looking at the prospects for 1950, it is important to view the national situation in the closing months of last year. During the last quarter of 1949, total U.S. industrial production had increased substantially from the low mid-year point. Retail sales also rose and maintained a level of not much below the same months of the previous year. The paper and board industry was no exception to this general rule, and statistical records now disclose a rapid recovery from the summer low points in output, with production during September through December running at near capacity levels.

Consumption of the products of the paper and board industry in 1950 will depend as usual upon the aggregate economic and industrial activity of the nation as a whole. There are a number of positive factors providing a strong basis for a high level of activity during at least the first 6 months of 1950. Among these is the fact that housing starts during the latter part of 1949 were at a high level, assuring continuation of wide construction activity during the first part of this year. As these homes are completed and sold there will ensue the necessary purchase of household furnishings, carpets, and similar equipment. Coupled with this are the current G.I. insurance payments which will tend to bolster consumer expenditures for various commodities, including nondurable goods such as clothing, shoes and related items. Another strong factor is the outlook for the automobile industry. Production of cars is expected to continue at a very high level through at least the first half of 1950. Thus, the large employment and purchasing power of the employes of the manufacturing plants, as well as that of distributors of automobiles, will assist in supporting the economy as a whole. Because the level of the nation's economy is so closely associated with the major heavy industries, it should be pointed out that the construction and automotive industries will create a large demand for the output of the steel and allied products groups and so maintain employment and purchasing power in these important segments of our economy. These fundamental factors suggest that there is considerable evidence that production and consumption of nondurable products will hold up well, along with the durable goods.

Over the past few months, renewed confidence in industrial and business activity generally has been generated because of the more even relationship between supply and demand of many goods and services, with resulting price stabilization. Certainly this is largely true in the field of pulp, paper and board where, following the substantial price adjustments of late 1948 and the first half of 1949, prices firmed and have since remained reasonably stable. It is generally believed that the price structure of industrial commodities will remain firm for the next several months. However, there has been indication of some weakening in farm prices because of increased output, resulting in heavy supplies somewhat exceeding domestic and export market demands. On the other hand, because of the price support program for many farm products, it is not anticipated that any precipitous weakening in farm product prices will occur.

These analyses of some of the key spots in our economy point to a continuation through the first half of 1950 of the recent high level of gross national product and consumer expenditures. As part of this over-all picture of anticipated conditions for the next few months ahead, the pulp, paper and board and allied products industries enter 1950 in a strong and healthy position, with regard both to domestic markets and supplies and inventories of raw materials, as well as finished products. It is particularly noteworthy that inventories of the various products of the industry are reported at a reasonable level, neither much too large nor much too small in relation to sales. The only really dull spot in the 1950 outlook is for U.S. exports of pulp, paper, board and products. Devaluation of currencies by more than 30 countries has severely handicapped the U.S. exporter in many world markets, because of its effect on price competition (including ocean freight space costs) with foreign producing countries. Sufficient capacity exists in the industry to produce the expected volume of 1950 market demands, but production will have to run at near-full schedules to meet the demands—probably close to the levels prevailing in the last quarter of 1949.

Manufactures—Paper and Board[1]

Prices and Labor

Manufacturers of paper and board expect the high level of operation enjoyed in the last quarter of 1949 to continue through the first quarter of 1950. Reports received from field offices of the Department of Commerce during the first week of the new year were optimistic and indicate that, with a few minor exceptions, the industry is operating on a 6-7 day work week. In the paperboard segment, unfilled orders on file at the close of business December 31 were 26 percent greater than at the end of 1948.

The Chicago and Minneapolis Commerce Department field offices report that orders received in the Great Lakes area are in sufficient volume to permit longer machine runs with corresponding savings in the loss of machine time for clean-ups. Make-up order delivery periods in this area range from four to seven weeks, and there is evidence of some standard grades being accumulated in inventory at the several levels of the distribution system. Both Commerce offices in this area also report a seasonal slackening for building paper and board, although activity in this segment is still above expectations as a result of continued mild weather. The Chicago office reports prices of solid and corrugated board are continuing firm, and that there is a strong demand for multi-wall bags.

A full work week of 6-7 days is also reported for all mills in the New England area, except the rag content writing paper mills which are mostly operating on a four day schedule. The back-log of orders in this area is in sufficient volume to assure present operating schedules through February and into March. Merchants in the New England States express themselves as agreeably surprised at the way business has held up and state that inventories of most grades are in better balance than they were a year ago, with a 60-day supply of most standard items. Retailers in the area are continuing to place small orders and to depend upon wholesalers to carry the stocks.

The Commerce Department's field office in New York reports business in general to be good, with from 6 to 8 weeks required to fill current orders. A leading paper merchant in this area has announced that he is restoring the 2 percent – 10 day cash discount rate, effective January 1.

The West Coast field offices of the Department report a continuation of the high level of operation in all segments of the industry. Paper and board are being produced in substantial volume, and converted products are moving evenly into regular channels. The new integrated board mill in Oregon is reported to be nearing a full production schedule, with finished board being shipped as fast as it is produced. Storage facilities at this mill are limited to 2 days' production.

Markets for paper and board and for finished paper and board products in the Southern States continue strong. Kraft and book paper mills in this area report a considerable backlog of orders, with approximately 30 days required to fill orders. Prices in this area are expected to remain firm through March, with a possibility of increases for some products, particularly kraft paper, expected after current orders have been filled. Inventories are reported as normal to slightly subnormal.

Newsprint

According to the latest press dispatches received from Toronto and London, Great Britain will purchase no newsprint from Canada during 1950, thereby confirming rumors of the past few months. As announced in last month's issue of this report, this decision will release approximately 100,000 tons of newsprint capacity for other markets. The Toronto report, however, expressed the belief that some adjustment in this policy would be necessary before many months, and a report from Australia indicates that some newsprint may be imported directly from Canada by the "down under" countries.

One large Canadian newsprint mill has announced that, effective January 1, certain extra freight charges on shipments to San Francisco, Los Angeles and Texas markets will be eliminated. While it is emphasized that this action is not to be construed as a price reduction, it will, nevertheless, result in a reduction of the delivered price of newsprint in these markets of from $2 per ton in San Francisco and $3 per ton in Los Angeles, to $5 per ton in Dallas. A later dispatch from Canada stated that two additional Canadian newsprint companies also would make comparable freight allowances to their customers.

Department field office reports confirm that the supply and demand for newsprint in the United States generally is in balance. Other trade reports and the latest data also indicate a balance throughout the country. According to the latest statistics, receipts from Canada during the first eleven months of 1949 were 6.3 percent over the comparable period of 1948, and domestic production in the same period was 2.3 percent over 1948; consumption was up 5.2 percent and consumers' stocks as of November 30 were 20.1 percent over those of the preceding year.

Groundwood, Book and Fine Papers

Department field offices throughout the country report that the heavy demand for printing papers evidenced during the closing quarter of 1949 was continuing into the first quarter of 1950, as Spring advertising programs approached their peak. As reported elsewhere in this report, mills producing the grades in this segment of the industry were operating on a full schedule, with the exception of rag content writing paper mills in the New England area.

Coarse Paper

The demand for coarse papers, especially kraft wrapping and bag paper, continues strong throughout the country. The backlog of orders averages between 30 and 45 days in most sections, although there are reports of some stockpiling of standard items. Plans for further expansion of kraft paper capacity in the south were announced in recent issues of trade pa-

[1] Section on MANUFACTURES — PAPER AND BOARD, PRICES AND LABOR prepared by James J. Sullivan.

Note: Data and estimates on gross national product and personal consumption expenditures from "The Economic Report of the President" January 1950.

pers, as two established companies made their plans public.

Sanitary, Tissue and Absorbent Papers

The supply of sanitary, tissue and absorbent papers, according to reports of field offices, is adequate to meet current demand and prices remain firm.

Production of sanitary papers during November 1949, the last month for which official figures are available, was 7 percent above the output of November 1948. Production of this group of papers during the first eleven months of 1949, however, was 6 percent below that in the comparable period of 1948, due chiefly to a decline in the absorbent grades.

Boards

The paperboard segment of the industry has maintained the pace of recent months and, except for the usual holiday shutdown period, operated at a much higher rate than that of earlier months. Reports of price stabilization and of anticipated advances, especially for kraft board, highlighted the reports from the Commerce Department field offices throughout the country. Unfilled orders on file December 31 were 26 percent above those of December 31, 1948.

The Department's Boston regional office reported the last quarter of 1949 as the most productive quarter of the year. However, orders in this area are expected to be spotty during the next few months. Inventories of all types of paperboard are reported to be at a comfortable level in the Great Lakes area, with prices firm.

Reports from the Minneapolis and Chicago regional offices of the Department of Commerce indicate a seasonal slackening in the demand for building board, although it is stated that the demand is above expectations. According to the production statistics for November 1949, output of building board was 13.5 percent below that of November 1948.

Prices

All indications point to stabilized prices on most grades of pulp, paper, board and products for some time ahead, according to reports received from Department field offices throughout the country.

The Story of RFC

By Richard LaCoste

WASHINGTON, D. C.—High and hot on the agenda of the Eighty-first Congress' second session is the Reconstruction Finance Corporation. Flanked on the one side by its fear of a burgeoning bureaucracy and on the other by solid stands of the banking interests, big and little business stands square in the middle. Pulp and paper producers, chemical firms, equipment manufacturers and all allied industries have a vital stake in the survival of RFC or its containment—depending upon whether they are borrowers or lenders.

What is RFC? How does it work? Who may promote loans and for what purpose?

RFC is the agency to whose authority and power the loan functions of the Smaller War Plants Corporation were transferred January 28, 1946 by Executive order of President Truman. This transfer increased immeasurably RFC's opportunities to help small business. At the beginning, especially when Commerce Secretary Henry A. Wallace sat in the saddle, only small business was encouraged to seek loans. Today, big businesses such as Lustron Corp., Glenn L. Martin Co., Reynolds Metals Co., and Kaiser Co., Inc. owe RFC from $2,240,000 to $95,865,000.

This is going into the banking business with a vengeance. In addition, the financial philosophy of RFC boils down to this: it will lend money to any business—big and small—which cannot borrow from private banking interests.

Currently, RFC has more than $416-million in such loans outstanding. The going rate of interest is four per cent. Terms run as high as ten years for repayment of loans. This $416-million is divided among 5,400 businesses. More than 1,200 applications for loans are received each month. As many more are turned down.

Briefly stated, the Reconstruction Finance Corporation Act provides RFC with the authority and power to make loans to small-business (sic) unable to raise money thru their local banks or other money-lending sources available to them. In the past, loans of as little as $200 have been approved. Locally, loans up to $100,000 are authorized. More than that amount requires the approval of the Washington office. In cases where banks underwrite 25 per cent of a loan, $350,000 may be authorized.

What are the criteria for loan approvals? They're peculiar to say the least. Recently, when Harvey J. Gunderson, an RFC director, sought to defend RFC's lending policies in a congressional hearing, he told Sen. Paul H. Douglas (D-Ill.):

"Under our Act, Senator, any business concern, where we think it will continue employment and increase the economic stability of the United States, can get a loan from us, if it can't be had privately."

There is the RFC lending policy in a nutshell. Businessmen are divided on the issue. The hundreds of industrialists—both big and small—who drew blank stares from bankers when they sought loans to expand their business or prop it up temporarily, swear by RFC. Others fear the agency is the first wedge being driven deep into the heart of free enterprise.

How does it work? Who may promote loans and for what purpose?

In order to be eligible for a loan a prospective borrower—be he pulp refiner or paper maker—first must contact a commercial bank and seek a loan. Failing to negotiate such a loan, he may then apply to RFC. This he does by writing a letter to any one of 31 Commerce Department offices strategically spaced thruout the U. S. and Alaska. The prospective borrower must state the following facts in his application: how much money he requires; for what purpose; what collateral he can put up; why he failed to negotiate a loan with private money-lending institutions.

The rest is routine. The regional office sends the applicant a form to fill out. These regional offices, incidentally, render services ranging from counsel concerning all phases of business management—personnel, problems, promotion, market trends et cetera—to actual and active assistance in negotiating loans. They act as liaison between borrower and the RFC which actually makes the loan. "We want it distinctly understood, however," a Tax and Finance official told *Paper Trade Journal*, that we do not lend money. That is RFC's function."

When the applicant returns the form to RFC's regional office, the experts there study and analyze all aspects. In some cases RFC will assume the entire amount of the loan; in others it will lay off part of the loan with a commercial firm. That is, if it makes the loan.

In sum, it would be well for prospective borrowers to remember that RFC will take into consideration, whenever loans are contemplated, the soundness of the business enterprise; its long-range possibilities; whether it will increase employment in the town, and have a favorable effect upon the economic life of the community on the whole.

To what purpose may loans be applied?

Taking the pulp and paper manufacturing field for an example, there is no industry allied with it not eligible for a loan. Here are some of the conditions for which loans may be requested: payment of labor; purchases of conveyors-elevators, power transmission equipment, fork trucks, towing tractors, slitters, chemicals, dye stuffs, etc; replacement of worn-out machinery used in the industry; purchase of any mechanical machinery used in the course of business, or for the purchase of additional machinery; expansion of an established business; payment of indebtedness and taxes with *a portion of the proceeds of the loan* applied for; establishment of a new business.

Summing up, an RFC loan either is a windfall for a hard-pressed businessman or government encroachment into the private banking business. When bankers balk at making loans, RFC steps in. Is it good or bad business?

Congress is divided on the issue. All private banking interests are against the agency. Big and little prospective borrowers stand square in the center of the controversy.

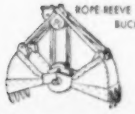
Check this list of Brownhoist features... when you're thinking of a diesel electric locomotive-crane

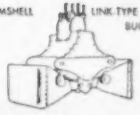
- ✓ Travel power applied direct to axles by 2 oversize inside hung spring-mounted motors
- ✓ Motor current supplied from generator direct connected to Diesel engine
- ✓ Travel speeds up to 15 MPH. for heavy duty switching service
- ✓ Helical gear reducer transmits power for hoist drums, swing, and boom
- ✓ Double disc roller bearing mounted rotating clutches
- ✓ Electric swing available at extra cost
- ✓ Cast steel rotating bed insures rigidity and permanent alignment of machinery
- ✓ Monitor-type cab provides 360° visibility
- ✓ 14" safety clearance between car body and rotating bed
- ✓ Roller bearings at all essential points

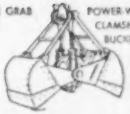
CAPACITIES 30 TONS AND UP

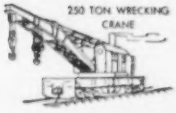
Only in the new Brownhoist Diesel Electric Locomotive-Crane can you check affirmative throughout this list of features that mean faster, safer, easier and more economical materials handling and car switching. Why accept less when it costs no more! Be sure you get the *best* when you invest.

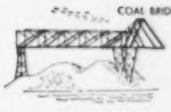
BROWNHOIST BUILDS BETTER CRANES


ROPE-REEVE CLAMSHELL BUCKET


LINK-TYPE ORE GRAB BUCKET


POWER-WHEEL CLAMSHELL BUCKET


250 TON WRECKING CRANE


COAL BRIDGE

INDUSTRIAL BROWNHOIST CORPORATION • BAY CITY, MICH. • **DISTRICT OFFICES:** NEW YORK, PHILADELPHIA, CLEVELAND, CHICAGO • **AGENCIES:** DETROIT, BIRMINGHAM, HOUSTON, LOS ANGELES, PORTLAND, SAN FRANCISCO, SEATTLE, SPOKANE, CANADIAN BROWNHOIST LTD., MONTREAL, QUEBEC.

According to the Bureau of Agricultural Economics, which studied the nation's spending and saving habits at the request of the Federal Reserve Board, the accumulated liquid assets of America's families is estimated at more than 90 billion dollars.

The pulp and paper industry and all allied enterprises are entitled to their fair share of this surplus. If private bankers won't accommodate prospective borrowers, RFC will. That's the story of RFC.

SUPPLIERS

Duriron Co. Names Staley

Wayne D. Staley, formerly New York district manager for The Duriron Co., has appointed general sales manager and will be located at the home office of the company in Dayton, Ohio. In directing sales and advertising activities, he will replace D. E. Jack, who has resigned as vice-president in charge of engineering and sales. R. F. Sharpe, former manager of the Philadelphia office, has been appointed New York district manager. Ralph L. Watts, who was formerly sales engineer in New York, will be in charge of the Philadelphia office.

ACME NAMES H. L. BILLS

Acme Steel Co., Chicago has elected H. L. Bills as vice-president in charge of industrial relations for the company. Mr. Bills had previously served as director of industrial relations for Acme since 1937. Prior to his association with Acme, he had been a Labor Relations Consultant for 16 years. Bills is currently Chairman of the Legislative Committee of the Illinois State Chamber of Commerce. He is a past president of the Industrial Relations Association of Chicago, a member of the Industrial Relations Committee of the American Iron and Steel Institute, and a sponsor of the Industrial Relations Seminar at the University of Chicago.

Larson Named Sales Mgr.

Falk Corp., Milwaukee, announced recently the appointment of Arthur L. Larson as assistant to the sales manager. Mr. Larson also moves up to the position of manager of the sales inquiries division. William J. Urban, former special representative in Coupling Sales, has been appointed manager of coupling sales. The new Manager of distributor sales is Don K. Lambert. He was, previously, special representative in the Distributor Sales Division. Roland E. Govan heads Sales Promotion, a newly organized department at Falk. Working with him are Eugene H. Millmann and A. H. Kelley.

Heppenstall Co., Pittsburgh, announces the election of Harry W. Davidson as secretary-treasurer of the company and a member of the board of directors. Mr. Davidson joined the Heppenstall organization in 1943. He worked at the Heppenstall-Eddystone Corp., Eddystone, Pa., until that Navy-owned plant closed in 1944. He then came to Pittsburgh and has served in various capacities during the last five years. Other new members of the Heppenstall board of directors are Robert C. Downie, president, Peoples First National Bank & Trust Co., Pittsburgh, and chief of the Pittsburgh Ordnance District, and E. P. Hawkins of Callaway Mills, Inc., New York.

Allis-Chalmers reports that Harold H. Indestad, an engineer's assistant in the screen sales section of the basic industries machinery department since 1944, has been transferred to the company's Charleston, W. Va., district office where he will give special attention to sales of products of the basic industries department. Mr. Indestad attended the University of Wisconsin and has been with Allis-Chalmers since 1940. During his association with the company's screen section, he traveled widely in the East and Midwest.

Hooker Electrochemical Co. announces that Dennis A. Riordan has been elected treasurer of the company, effective January 15, succeeding John F. Bartlett who retired as treasurer and assistant secretary on December 1.

The Gulf Oil Corp., with headquarters at Pittsburgh, Pa., has appointed Walter S. Miller chief fuels and lubricants engineer, Paper Mill Section, Industrial Products Engineering. Mr. Miller was graduated from Lehigh University in 1934 with a B.S. degree in Chemical Engineering. He has been associated with the Gulf companies for fifteen years, being employed successively as research chemist at Gulf's research laboratory, Harmarville, Pa., and as lubrication engineer in the New York sales division.

Combustion Engineering-Superheater, Inc., has appointed Carl E. Miller to the engineering staff of its Industrial department. Mr. Miller was formerly technical advisor in research and development on coal, gas, and petroleum technology at Battelle Memorial Institute and served as special consultant on fuels to the Economic Cooperation Administration in Europe.

Honor Pusey & Jones President

WILMINGTON, Del. — Andrew G. Spiegelhalter, president of the Pusey & Jones Corp., was honored at two affairs in recognition of his 50 years' service with the company.

On January 19 a dinner in his honor was given in the Hotel DuPont by the company's board of directors, highlighted by the presentation of commemorative gifts. On hand to extend congratulations were Secretary of State, Harris B. McDowell, Jr., representing Gov. Elbert N. Carvel; Mayor James F. Hearn of Wilmington, William Freegard, president of the Delaware Chamber of Commerce, and Gerrish Gassaway, manager of the chamber.

On January 17 employes of Pusey & Jones tendered a dinner at the Shrine Club in honor of Mr. Spiegelhalter and William Weir, superintendent of the machine club, who also completed 50 years service with the company.

PETERSON WITH RIVERSIDE

The Riverside Metal Co., Riverside, N. J., producer of nickel-silvers, phosphor-bronzes and beryllium copper, has appointed George Peterson, Jr., as the manager of its new Special Products division. This new division has been established to seek out special products which the company is equipped to make, and to develop orders for them.

MAIRSON JOINS LAWSON

E. P. Lawson Co. Mid Western branch has appointed Kenneth Mairson as sales representative in that area. Mr. Mairson will work out of the new E. P. Lawson Co. offices at 628 South Dearborn street, Chicago . . . This appointment is part of the organization of the recently established Mid Western branch of E. P. Lawson Co., manufacturers of Lawson paper cutters and bindery equipment, for sales and service in the Midwest.

STOWE-WOODWARD APPOINTS GRAY

Stowe-Woodward, Inc., Newton Upper Falls, Mass., manufacturers of rubber covered rolls and the Stonite roll, announces the appointment of Clyde W. Gray as executive vice-president. Mr. Gray comes to Stowe-Woodward, Inc. directly from Ford, Bacon & Davis, industrial and management engineers, for whom he not only served a large industrial clientele but functioned as general manager of their atomic bomb operation at Oak Ridge, Tenn. in 1944 and 1945.

Getting the Most From V-Belts

By

TYLER G. HICKS

Mechanical Engineer, Summit, New York

Severe starting and operating loads, moist atmospheric conditions, and the presence of excessive quantities of lubricating oil often cause trouble with paper mill V-belts. Any of these conditions will shorten belt life and increase machine outage time. Higher maintenance costs, reduced output, and poorer product quality are almost certain to result, together with a loss of machine operator's time. Paper mill owners and maintenance men can get the most from their V-belts, even more than they are getting now, by establishing a well balanced maintenance program which spots troubles before they become serious. Let's take a look at typical paper mill applications of V-belts, see what causes trouble, and how it can be avoided.

Applications

Washers, vacuum deckers, save-alls, mixers, de-knotters, feeders, and pulp refiners are a few of the paper machines employing V-belts. The power transmitted varies with the application from less than one horsepower to one-hundred or more. Since wide ranges of operating temperatures, humidities, and lubrication conditions are encountered in these various applications, good V-belt maintenance consists of more than simple replacement of worn belts. To get the most from belts applied to a given unit, they must be properly selected, installed, and guarded.

V-belt applications have increased in paper mills because this type of drive has several advantages over the older flat belt drive. It requires less space, maintains exact speed ratios between driving and driven pulleys, does not transmit vibration, is easy on bearings, and is clean and quiet. These are definite advantages which have been verified by experience but experience also shows that improper care and adjustment of V-belts can quickly cause as many operating troubles as were encountered with poorly maintained flat belts. For this reason, maintenance must be based on "know-how," not on vague guesses.

Belt Location

Both rubber and leather V-belts are used in various locations in paper mills. Rubber is more common than leather but in this discussion of getting the most from V-belts, both types will be considered. Where suggested applications and maintenance hints apply to only one type of belt, this will be pointed out.

Belts which operate in hot, humid, oily, or damp locations are subject to more wear than those in dry, clean places. In general, the surrounding air temperature in the belt location should not exceed 140°F unless special high-temperature resistant belts are used. When the surrounding air temperature exceeds 200°F the belt manufacturer should be consulted. Now a question might be asked: Where do air temperatures ever reach 140 to 200°F in a paper mill? Atmospheric temperatures never reach these levels but the air in tightly fitted belt guards often does when there are no provisions for free and rapid air circulation. The belt overheats, wears rapidly, and breaks or fails to maintain the desired speed ratio. A tight fitting guard keeps water and oil off the belt but stops free circulation of air. Hence, it is good practice to use ventilated guards for belts fitted to equipment in which the surrounding air temperature is higher than normal, such as in dryers, near large motors, and close to steam pipes.

Lubricating oil which drips or is spilled on V-belts deteriorates belt material and eventually may cause collapse of the belt. Water shortens V-belts, making them useless for the purpose intended if they shrink while in storage, or causes excessive loads on paper machine and motor bearings when the water contacts belts in use. For these reasons, all V-belts should be adequately protected from both water and oil but the construction of the protective device should never be such that excessively high temperatures exist in the immediate belt location. V-belts stored in a dark, cool place will never give any trouble when needed. Horizontal storage on a proper size bench or table is usually believed to be superior to hanging the belts from pegs because in the former position there is no chance for elongation.

Belts and Sheaves

Since belts operate on sheaves, or pulleys, both must be well matched to prevent undue wear. Grooves which are too small or too large, and sheaves with a diameter less than that recommended in Table I will cause rapid wear of belts. On standard paper manufacturing machinery, old belts should always be replaced with new belts of the same size and type. Where lineshafts and other types of drives have been built by the mill maintenance department, a sufficient number of correctly sized belts to handle the maximum load without excessive tension are necessary. Belts for a given drive should be selected only by those familiar with belting calculations.

Mis-alignment between shafts and sheaves will wear the sides of belts

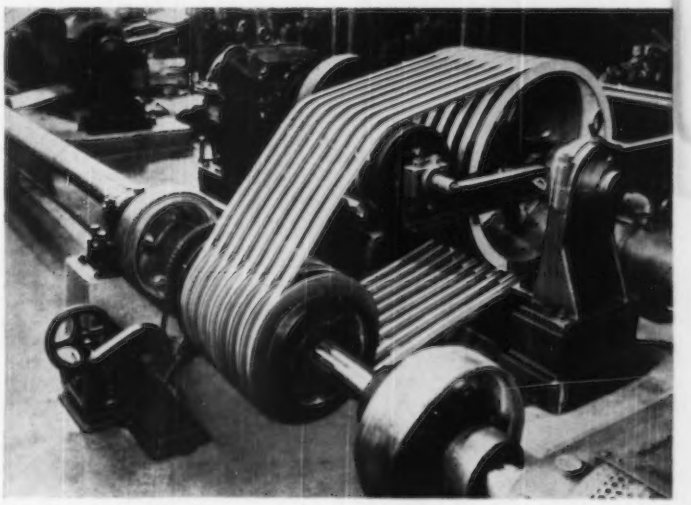
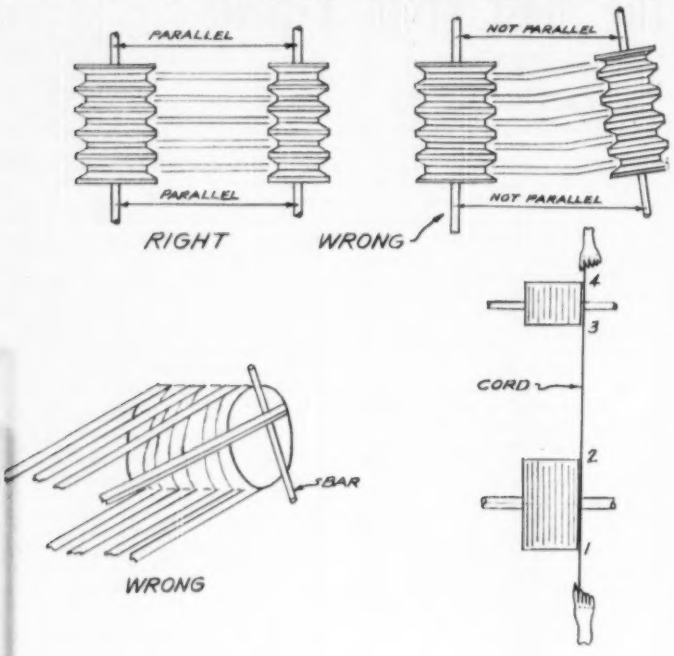


Figure 1: V-belts used for driving a standard Fourdrinier paper machine. The driving sheave on this unit is adjustable, permitting easy adjustment of driven sheave speed. Idler pulley to take up slack is suitable for this type drive.

Figure 1: For best operation, drive and driven shafts should be parallel. A bar used to stretch belt over the pulley will damage belt surfaces. Check pulley alignment by stretching cord as shown. If pulleys are aligned, cord will touch rims at points 1, 2, 3, and 4.



more rapidly than the other belt surfaces. To prevent this condition, shafts of the driving and driven units should be parallel and the pulley faces in the same straight line, Figure 2. Use of a bar to pry belts onto a pulley is poor practice because belt surfaces are damaged and the strands may be stretched beyond their safe limit. Best practice is to move the driving motor nearer the driven unit and slip the belts over the pulleys, after which the motor is moved back far enough to give the proper tension. Proper belt tension can be determined by striking the belts with the hand. Too much slack is indicated by a "dead" vibration, proper tension by a "springy" vibration. In horizontal drives, it is best to have the slack strands of the belt on the top side. Idlers should not, in general, be used to put tension in the belts unless operating conditions require that slack-side sag be on the bottom. The minimum tension which will drive the load without belt slippage produces the least wear on the belt.

Belt Replacement

Manufacturers recommend that worn V-belts be replaced with an entire set of new belts, not just a single belt. This practice is advisable in all paper mills but there are some instances where partially worn belts of the same length from two different drives can be used temporarily on another drive. When this is done, the drive on which the old belts are used should not be one of major importance because belt failure might cause an expensive outage. As V-belts wear they ride lower in the pulley grooves and eventually seat on the pulley bottom. To prevent excessive wear of the groove and belt slippage, it is common practice to replace belts before they reach the bottom of the groove.

V-belts never require belt dressing; in fact some dressings will rapidly deteriorate the belt. Occasional adjustment of belt tension is necessary, particularly after installation of a new set of belts, but once a belt has "worn in," adjustments are not frequent. To protect new belts, sheave grooves should be clean and free of burrs. When a drive is to be out of service for some time, such as during mill shutdown, it is good practice to remove all V-belts and store them in a cool, dry place. The sheaves are then given a thin coat of grease to prevent rust. Grease must be thoroughly removed before belts are put on the pulleys again. *Table I* summarizes common cause of belt wear and trouble.

Paper mill maintenance men can cut belting costs and replacements by exercising care in belt selection, application, and operation. Regular inspection of all V-belt drives, together with accurate records showing the date of installation and all work done on the belt during its effective life will permit economical selection and use of belts for drives installed in the future. A well balanced maintenance program can be set up in a short time and the results spread over many years of mill operation.

Table I

Belt Section*	Min. Grooved Pulley Pitch Dia., Inches	Min. Flat Pulley Dia., Inches
A	3	17
B	5.5	24
C	9	42
D	13	52
E	21.5	62

V-BELT TROUBLES

Trouble	Probable Cause	Remedy
Slippage and failure to carry load	Worn pulley grooves; oily belt; insufficient tension; worn belts; poor alignment; pulley too small	Replace or regrind pulley; remove oil or replace belts; increase tension by moving driver; replace; re-align; replace pulley
Overheated belts	Too much tension; wet belt; insufficient ventilation; belt overloaded; excessively warm air impinging on belt	Reduce tension; dry belts and check length by measurment (replace if too short); provide openings for air circulation; use heavier belts; shield belts from hot air
Noisy operation	Worn belts or pulleys; insufficient tension; damaged belt surfaces	Replace belts and regrind pulley grooves or replace pulley; move driver to secure proper tension; replace belts
Excessive belt wear requiring frequent replacements	Pulleys with burrs or sharp groove corners; too much tension; oily or moist atmosphere; poor alignment; overloaded; poor installation methods	File burrs and fill in sharp corners or replace pulley; reduce tension; guard belt; re-align; use larger belts; follow installation methods given in this article

Note: These letters designate standard cross-sections available from all manufacturers. "A" is a ½" wide by ⅜" high belt, "E" is a 1½" wide by 1" high belt. Other letters designate intermediate sizes.

Status of Portable Chippers

By

E. W. FOBES

Forester, Forest Products Laboratory,[2] Forest Service,
U. S. Department of Agriculture

Abstract

Considerable development work has been done and a number of portable chippers suitable for chipping small wood have been developed and are in limited use for the reduction or disposal of prunings by city park departments and in the production of chipped wood for crude fiber products. There is need for chippers capable of handling larger wood and for debarking equipment that would operate in conjunction with the chippers to produce cleaner chips with a lower bark content.

Introduction

Mechanized timber harvesting has reached a stage of development in the United States that indicates certain advantages to be gained in forest management and utilization by the use of fragmenting equipment commonly called portable chippers. The underlying purpose of the use of such equipment is to reduce the handling of individual pieces of wood. The common thought is that the cost can be lowered through chipping at or near the source of wood supply because chips can be bulk-handled with blowers, conveyors, and other powered equipment better than miscellaneous forms and sizes of rough wood.

The Forest Products Laboratory, in the course of its investigations of more efficient timber harvesting methods, has recently made a survey of the present status of commercial chippers, the types of equipment available, the problems encountered, and the practical aspects and prospects for substantial extension of this method of wood conversion.

In general, it was found that, though of much current interest among timber operators and foresters, movable machines for converting rough wood into chip form are still in the development stage. Progress is not advancing so fast in connection with the utilization of the chipped wood and its application to forestry as it is in other applications, notably that in horticulture for shade tree and orchard brush disposal. This is challenging but not surprising when it is realized that the latter field probably involves larger margins for reducing high labor costs than are applicable to utilizing wood waste for a merchantable commodity.

Strictly speaking a portable chipper is one mounted on the same frame as the power supply and requiring, at most, only the disconnection of the conveyor system when it is moved. When such a unit is mounted on a vehicle it should be classed as a mobile chipper. When the chipper itself can be moved as a unit but requires separate handling of the power unit, disconnection from the foundation, or other similar dismantling, it should be termed semi-portable.

Although the term "chips" is commonly used to designate the types of fragmented wood, among the wood-using industries several classes of wood fragments are recognized. It is important to draw fairly sharp distinctions between these classes, especially the two major types of wood fragments, namely, (1) chips in the technical sense, and (2) hogged wood. Table 1 gives a brief summary of the various kinds of chips, and their uses and specifications.

Among the first efforts in the United States to develop mobile chippers were those mounted on railroad cars. One was used in the Lake States in the late 1920's to produce chips for wood distillation. A more elaborate one was designed on the West Coast in 1929. It was complete with associated pulpmill wood-room equipment, including saws, splitters, and disk barkers. The wood room with its problems was in effect merely transported to the woods where additional problems were added.

About 1940 in the Southeast a standard disk chipper with power supply mounted on a steel-wheeled trailer was used to chip pine tops and trees left by pulpwood loggers. Later a similar operation was tried on the Gulf Coast. More recently a truck-mounted chipper has produced chips for roofing felt mills in the Northeast. These operations were designed to produce utilizable chips. However, during this same period a mobile chipper was developed in the Northeast to dispose of trees killed by the Dutch elm disease. From this came the present-day mobile chippers used for brush disposal.

Chipping of brush along power line right-of-ways has been found to minimize extra handling of small material, the need for burning crews, the danger of escaping brush fires, as well as dependence upon favorable weather conditions. Similar considerations are given to disposal of thinnings on at least one municipal watershed. A few horticulturists have found the use of a mobile chipper well worth the investment in disposing of orchard trimmings and improving the soil in sandy areas. Chips disintegrate and return nutrients and humus to the soil quicker than do brush piles and tree tops.

Concurrent use of semiportable chippers and hogs to produce utilizable chips has increased at permanent sawmills and railroad sidings. Slabs, edgings, and round wood are being chipped for roofing felt mills and other industries.

From the foregoing it appears that mobile equipment is especially applicable to thinnings and intermediate crops since the manual handling of small round wood is very expensive. Mobile or portable chippers should also find wide use in the salvaging of slabs and edgings produced by portable sawmills.

Available Equipment

Types of chipping equipment available today can be classified as (1) disk chippers, (2) cylinder chippers, and (3) wood hogs. In addition, hammer mills and shredders also produce wood fragments. Any of these machines are or can be made portable and mobile, while most of the chipping equipment can be adjusted or modified to produce uniform chips.

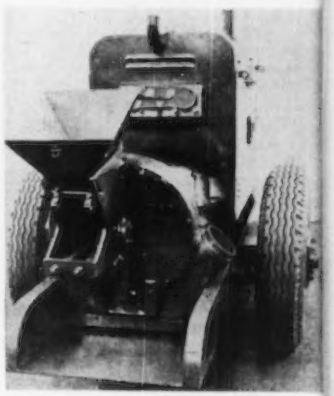


Figure 1. Small mobile disk chipper used for brush disposal.

Disk Chippers

Disk chippers are machines having a steel disk attached at right angles to a shaft. A number of knives usually varying from 4 to 12 are attached radially in slots that permit them to extend beyond the face of the disk. As the disk rotates, the attached knives pass a single bed plate or square-edged stationary knife. A spout to hold the wood during chipping extends from the stationary knife outward at an angle to the disk. Adjustments of the knives and spout angle determine the size, shape, and quality of chips produced.

[1] Presented at the 1949 Annual Meeting of the Forest Products Research Society, Grand Rapids, Mich.

[2] Maintained at Madison 5, Wis., in cooperation with the University of Wisconsin.

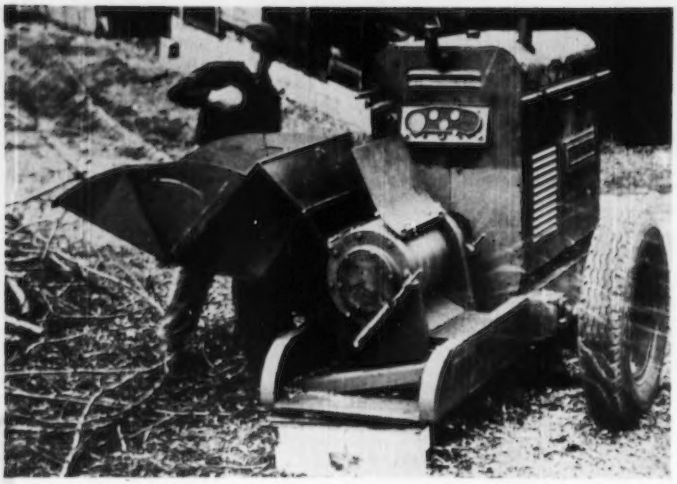


Figure 2. Mobile cylinder chipper with wide throat designed to dispose of brush along right-of-ways.

A small mobile disk chipper manufactured and marketed in Massachusetts is shown in Fig. 1. A tree trimming company has mounted this same chipper on its fleet of trucks. The truck motor is used to supply power to the chipper, which is mounted behind the cab. Chips are blown directly into the truck body behind the chipper, thus making a complete tree trimming disposal unit.

A New York manufacturer designed and built a portable 10-knife disk chipper for the armed forces during the war. Although this unit has never been marketed commercially, the manufacturer is in a position to make additional units if industry wants them. It is a compact chipper and power unit with a base area approximately 4 feet by 5 feet using a hollow frame for the fuel tank. The spout is designed for round wood up to about 5 inches in diameter.

Neither of these machines was designed specifically for pulpwood, but they do produce uniform chips from small round wood. There is, however, a portable chipper of this type for pulpwood up to 12 inches in diameter now being designed and built for trial by a Wisconsin manufacturer.

Cylinder Chippers

Two recently developed cylinder chippers resemble the action of planer or jointer heads. A steel cylinder on a shaft has recesses to hold knives parallel to the face of the cylinder as it rotates the knives past a single bed plate. Although available machines are designed for brush disposal, a Wisconsin manufacturer is working on a larger stationary machine of this type designed to produce uniform pulp chips from slabs. Improving chip quality is justified because of the inherent advantage of the low, wide horizontal throat on this type of machine.

Depth of recess ahead of the knives and position of the bed plate determine the size and shape of wood fragments produced. Cutting done near the under side of the cylinder produces shavings. Cutting done higher up on the cylinder produces chips.

A mobile machine of the type manufactured in Massachusetts is shown in Fig. 2. These machines are used to dispose of brush along right-of-ways. The wide throat, which is especially designed for the purpose, permits easy passage of limbsy material. It is reported that round wood up to 6 inches in diameter or slabs can be chipped. As now used nonuniform chips are produced and efforts are being made to determine their usability as fuel.

Wood Hogs

The principal difference between wood hogs and other chipping machines is the number of bed plate knives used. These are usually two to four in number, spaced around one-fourth the circumference of the housing. Some machines have only one bed plate and produce uniform chips, but are, nevertheless, called hogs.

Two types of machines are made. One has a straight cylinder, while the other has a "V-type cylinder" that is between a cylinder and a pair of disks. The former may have knives extending the full width of the hog as on cylinder chippers or be studded with many short knives. On V-type hogs radial knives similar to those on disk chippers are used.

A mobile wood hog manufactured in Michigan is shown in Fig. 3. Both two- and four-wheeled models are made. The machines have a horizontal throat similar to cylinder chippers and the additional advantage of a power feed. A straight cylinder with 24 knives rotates past two bed plate knives.

Other portable wood hogs have been made by individuals from standard chipper equipment supplied by manufacturers. These machines are being used to dispose of orchard and shade tree trimmings as well as brush on land clearing operations. Some use is being made of the hogged wood to improve the soil but no attempts have been made to utilize it for industrial purposes. However, the same type of hog as used for brush disposal has been used to produce uniform chips by changing the knives and feed.

Changes are being made on a V-type hog in the Southeast in experiments to improve the quality of chips.

Hammer Mills and Shredders

Hammer mills and shredders are generally designed to produce a different type of material than that for which portable chippers are being considered. They do, however, produce wood fragments suitable for certain types of utilization. Portable and mobile units are used for other agricultural products, and should not be overlooked where special sized wood products are concerned, such as fines required for refining ores.

Factors Affecting Machine Selection

The power required is important in determining the maximum size of chipper that can be used as a mobile or portable unit. Machines that fragment wood by cutting and shearing require considerably less power than those that break or crush wood. Thus, disk chippers and V-type hogs require the least power. The power requirements range from about 7.5 to 11 horsepower to produce chips at a rate of one cord per hour.

Hogs and other machines that depend on both cutting and breaking require considerably more power. The amount depends upon the ratio of the two actions and the size of the material produced. In general, it requires considerably more power to produce fine wood fragments than coarse. Thus, the requirements may amount to as much as 40 horsepower per cord per hour.

The size of the throat opening obviously determines the size of rough wood that can be chipped by a machine. Hogs in general will accept larger wood than will disk chippers requiring the same horsepower. The ratio of horsepower to inch of opening varies with different machines from 1.7 to 15.0 horsepower per inch.

Insufficient data are available to compare throat openings and production rates with weight. However, it appears that throat opening in relation to machine weight is greater for hogs than for disk chippers. In other words, larger wood can be chipped in a hog than in a disk chipper of the same weight. On the other hand, production in cords per hour in relation to weight appears to be greater for disk chippers than for hogs.

In arriving at the above data and considering the suitability of machines for portable and mobile operations, it is found that V-type hogs are superior

to other hogs. They also appear to have advantages over other wood fragmenting machines with the possible exception of cylinder-type chippers which cannot be included in this comparison because of lack of data.

Weight is an obvious consideration in mobile equipment, but production rate is equally important. Output of chips must be balanced with the transportation system and delivery of rough wood by the logging crews. Other factors that affect machine selection are: (1) state highway load and dimension restrictions, (2) transportation facilities used, (3) length of haul, (4) specification of chips to be produced, (5) ability of machine to withstand rough usage, (6) character and size of raw material to be chipped, (7) height of feed spout, and (8) equipment or method used in feeding rough wood.

Handling the Raw Material

Feeding wood to portable and mobile chippers is a major consideration and a phase that has caused failure in some early machines. With present disk chippers wood must be elevated to the spout. As the diameter of the wood increases so do the size of the chipper and the height of the spout. Thus, the heavier the wood, the higher it must be lifted. This condition imposes definite limitations on manually feeding wood to chippers.

Several solutions for this problem have been or can be used. One is to set the chipper alongside a bank and feed the wood in from above. Another is the use of a portable ramp up which men carry the wood. Mechanical feeding is possible by using mobile pulpwood conveyors of the type used for loading trucks in the Northeast.

Disk chippers used on mobile and semiportable operations have vertical spouts. However, others have spouts at small angles from the vertical, making them easier to feed. Improvements have been made in spout and knife designs, but the only radical change in overall design is a horizontal chipper, which has been developed in Canada. This chipper is more or less standard design except it has been rotated 90° from vertical. Developments that lower the spout height will increase the suitability of disk chippers for portable operations.

Cylinder chippers have a decided advantage in this respect since the wood is fed in nearly horizontally. Wood need not be up-ended to get it into the spout. This enables long or tree lengths to be chipped and thus reduces bucking and other logging costs. Also the throat design permits the passage of limb studs and small branches. Increased size of these machines results in relatively minor increases in spout height.

Wood hogs are usually fed from a near vertical position, but the spout height in relation to the size of the machines varies within rather narrow limits. Horizontal power feeding is used in special applications, such as the portable brush hog. Other considerations are similar to those of the cylinder chippers.

Handling and Transporting Chips

Methods of loading and unloading transportation conveyances are different for chips than for rough wood. Blowers and trough conveyors are the most commonly used loading equipment. Unloading is usually done by the use of scoop shovels or dumping mechanisms, although suction equipment is sometimes used. A special type of truck with a central conveyor powered by the truck motor through a power takeoff is also available.

The space required for a given weight of chips is greater than for the same weight of rough wood. Variations occur depending upon species of wood, moisture content, size, and shape of chips, and other factors. Woods of various species received and chipped at the Forest Products Laboratory have averaged 243 cubic feet of green chips per cord of wood with variations from 210 to 291 cubic feet. Shaking and other actions, however, cause chips to slip and adjust themselves so that they occupy somewhat less space. Therefore, the average figure of 243 can be considered conservative.

Using this average figure as a basis, chip transportation by truck can be compared to pulpwood hauling. Commonly used pulpwood trucks haul 3 cords of wood. To haul the same weight or volume of wood in the form of chips requires a truck body with a capacity of 729 cubic feet, or 8 feet wide by 12 feet long, and about 7½ feet high. This size of truck body is not uncommon for hauling other products and are being used to haul chips and shavings in the Southeast. Similar trucks, especially selected for this purpose, are used to haul hogged wood on the West Coast.

Like computations can be made for other truck sizes. In general, properly selected trucks or truck and trailer units can be loaded to capacity with chips by using bodies higher than those to which loggers are at present accustomed.

Though the shipper cannot alter the size of railroad cars as easily as he can truck bodies, nor does he have so wide a selection of equipment, nevertheless chips are being transported by rail. Weight capacity per square foot of floor space is much greater for railroad cars than for trucks, and there is also a minimum load requirement that may in some cases be difficult to meet. For example, a box car with a capacity of 3,376 cubic feet has a load limit of 100,000 pounds or 50 tons. It will hold chips produced from approximately 13½ cords of wood. The weight of this volume of chips from the heaviest woods is considerably below the maximum, and for light-weight or dry wood even below the minimum requirements.

In comparison with pulpwood operations, it is found that approximately 18 to 20 cords are loaded in box cars. With heavy species it is possible to load to maximum weight limits and only in exceptional cases drop below the minimum requirements.

Gondolas and hopper-type railroad cars are more frequently used for chips. They are easy to load and often have trap doors in the bottom that facilitate unloading into mechanical conveyors. One model used for chips has a capacity of 2,547 cubic feet, or the

Figure 3. Mobile wood hog with a horizontal throat and power feet.

equivalent of chips from about 10.5 cords of wood. By heaping the chips, however, about three more cords are added. On an operation chipping green, heavy hardwood slabs an average of 60,000 pounds of chips were being loaded into cars of this type. Another operation reported an average of 50,000 pounds where some softwood chips were included.

Careful analysis and proper selection of transportation facilities are important in reducing handling problems and costs.

Production Costs

Costs that can be profitably incurred on portable chipping operations vary considerably with the objective. In this respect brush disposal operations present the most opportunities for savings and the fewest problems to overcome. Production of high quality chips, on the other hand, presents the most problems and a narrower margin for profitable operation.

The available cost data on mobile and portable chipping operations are extremely limited. Costs, however, on one brush disposal operation using a portable hog and a two-man crew were as follows: Depreciation $125.45 per year; gasoline 1¼ gallons per hour; oil, grease, and maintenance 5 cents per hour.

Cost data on semiportable operations are comparable to mobile and portable operations. A very good analysis of these costs has been compiled by James T. Morgan of the Central States Forest Experiment Station, Columbus, Ohio, and published in a bulletin entitled "The Production of Wood Chips for Coarse Fiber in the Central States Region." These data indicate that on operations where stacked cordwood is moved from the storage yard to the chipper and then chipped and conveyed into railroad cars, the cost is $2.00 to $3.00 or more per cord or $1.00 to $1.50 per ton. In the same area on similar operations it requires two man-hours to load a cord of wood into a railroad car from a stock pile. On contracts the work is done for $2.50 to $2.80 per cord. Under these conditions the cost of producing chips is comparable to the cost of hand-loading cordwood.

The rate of producing chips for truck haul must equal or exceed the rate of hand-loading wood where storage bins are not used. For example, in the Central States it requires one man-hour to load a cord of wood. Thus, with the common three-man crew a truck is idle one hour while loading three cords of wood. Under these conditions a portable chipper must handle at least three cords, or six tons per hour, to deliver the same amount of wood. Similar comparisons can be made to determine the chipper capacity required to compete with other wood handling methods in any given area. In any analysis, however, it will be found that the cost of chipper operation is low in comparison to the cost of labor employed in handling wood.

On any operation the weight that must be handled by man is a limiting factor. Therefore, low feed spouts, mechanical handling, and chipping long lengths at rates balanced with transportation to savings on portable chipping operations.

Table 1
Summary of Various Kinds of Wood Fragments, and Their Uses, and Specifications

Product	Use	How produced	Specifications
Chips	Pulp and paper industry	Wood is severed across its fibers and split along the grain at 0.5 to 1-inch controlled intervals along the grain to produce chips of uniform size.	Exacting. Chips must be of uniform size within narrow limits. Crushing of wood fibers is undesirable. Some bark is permissible in certain processes; others require bark-free chips.
Chips	Wood hydrolysis	..... do	Should pack well in digester. Some processes can utilize bark; others tolerate percentages slightly in excess of that normally found in round wood.
Chips	Ore refining; manufacturing steel	..... do	Size and form requirements vary. In one case chips or fragments as large as possible are used with or without bark in the carbonizing process; in another, small chips more nearly resembling sawdust are required.
Chips	Gas filtering and refining	..... do	To be chemically treated. Should be relatively long and thin, somewhat between chips and shavings. Some bark permissible. Should not pack tightly.
Hogged wood	Fuel	Random fragmentation by severing or breaking wood along or across the grain or at any intermediate angle to produce non-uniform chips. Is a product of sawmill and wood-fuel industries.	Fragments of varying sizes and shapes. Best mixed with sawdust for use in some burners.
Hogged wood	Wood hydrolysis Fuel fiber, chemical, and special.	..... do	Same as for chips.

Desirable Improvement of Present Machines and Additional Information Needed

Wood harvesting operations using portable and mobile chippers are still in the developmental stage. The principal factors retarding expanded use has been the limited selection of machines and transportation equipment specifically designed for the job. Other factors have included inadequate planning, supervision, and coordination with cutting and skidding operations. Lack of equipment to remove or reduce the percentage of bark and manufacturing processes that use bark have also contributed to unsuccessful attempts.

Mobile chipping machines specifically designed for brush disposal are in successful operation. Semiportable chipping plants are producing chips for utilization and shipping them long distances to processing plants.

Information gained from these operations indicates desirable improvements in chipper design and other factors that must be considered on mobile and portable operations. They also indicate the feasibility of operations and approaches to future improvements.

In order to gain these advantages, additional improvement in the machines themselves, research to utilize the material they produce, and determination of economic limitations are needed.

Two lines of advancement in machine development seem apparent. The first is to improve brush disposal machines so that chip quality can be adjusted to meet utilization requirements and increase the size of machines so that larger sizes of rough wood can be chipped. The second is to develop machines specifically designed to produce uniform chips from wood and meet the other requirements of portable and mobile operations.

Research is needed to determine the pulping characteristics, limitations, and necessary refinement of chips and hogged wood now produced by brush disposal machines from various sizes and species of wood. Similar efforts are needed for other processes, such as chemical conversion, or even for development of new processes to utilize this material.

Among refinements that are desirable or necessary is the reduction of bark content in chips. Several methods are being experimented with to reduce the bark content after chipping. The extent of these efforts and the factors involved should be determined. Then, if necessary, the work should be expanded.

There are limitations in diameter and length of rough wood that can be economically chipped for further processing. Beyond these limits chipping may be desirable and in some cases justified to utilize chips for improving the soil or the conditions of the forest floor. Such economic limitations need to be determined for chipping raw wood with portable and mobile chippers.

Patent Abstracts

● ***In addition to abstracts on the technology of pulp, paper and related industries, miscellaneous abstracts which may provide useful information are included.***

United States

2,492,821 — Permanent Paper and Method of Making Same. John Studeny, Erie, Pa., John D. Pollard, Baltimore, Md., and Chester G. Landes, New Canaan, Conn., assignors to American Cyanamid Company, New York, N. Y. Filed September 28, 1948—Issued December 27, 1949.

A method of improving the stability of paper against aging which comprises impregnating said paper with an aqueous solution of a member selected from the group consisting of ammonium and alkali metal salts of dicyanimide and subsequently drying the paper to retain therein about 0.3 percent to 10 percent of said compound.

2,492,822 — Permanent Paper and Method of Making Same. John Studeny, Erie, Pa., John D. Pollard, Baltimore, Md., and Chester G. Landes, New Canaan, Conn., assignors to American Cyanamid Company, New York, N. Y. Filed September 28, 1948—Issued December 27, 1949.

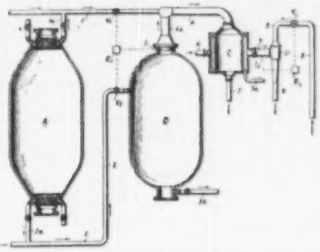
A method of improving the stability of paper against aging which comprises impregnating said paper with an aqueous solution of a member selected from the group consisting of ammonium and alkali metal salts of dicyanoguanidine and subsequently drying the paper to retain therein about 0.3 per cent to 10 per cent of said compound.

2,493,866—Recovery of Abietic Acid. Frederick H. Gayer, Chicago, Ill., assignor to Continental Research Corp., Chicago Heights, Ill. Filed May 3, 1947—Issued January 10, 1950.

The method of recovering abietic acid from mixed resin acid material of the group consisting of rosin, isomerized rosin, tall oil resin acids, and their mixtures, and alkali metal soaps of said materials, which comprises preparing an aqueous dispersion containing said resin acid material at a free resin acids ratio in the range of from 75% to 100% in from 10 to 200 parts by weight of water, and crystallizing abietic acid therefrom by permitting the dispersion to stand at a temperature of from about normal room temperature to about 100° C.

2,494,098 — Automatically Controlled Recovery of Heat and SO_2 Gas from Relief Gases and Waste Liquor. Carl Johan Lockman, Enebyberg, Sweden, assignor to American Heat Reclaiming Corporation, New York, N. Y. Filed June 22, 1943 — Issued January 10, 1950. Patent expires May 30, 1952.

In the operation of a sulphite cellulose plant having a digester, an expansion chamber, a surface heat exchanger for extracting heat from and concentrating SO_2 vapors from products taken from the digester, a first valved connection from the vapor space of the digester to the heat exchanger, a second valved connection from the liquid space of the digester to the expansion chamber and a connection from the vapor space of the expansion chamber communicating through said first connection to said heat exchanger, that improvement in the process of recovering heat and SO_2 gas while relieving said digester at the end of a cooking cycle which includes the steps



of relieving the digester by throttled flow of relief gas and liquid from the digester through said first and second connections, respectively, whereby to maintain the pressure in the digester higher than that in the expansion chamber and heat exchanger and thereby supply to the heat exchanger a mixture of gases comprising relief gases flowing from the vapor space of the digester and gases flashed due to pressure drop from the liquid flowing to the expansion chamber, and automatically maintaining the pressure of gases supplied to said heat exchanger at a substantially constant predetermined value by providing automatic means operable responsive to a drop in pressure of said mixture below said value to automatically reduce the degree of throttling of the flow of liquid and gas through said second and said first connections, respectively, in sequence in the order named, and thereby providing the additional supply of gas required to maintain the predetermined pressure primarily from additional liquid drawn from the digester and flashed in said expansion chamber, said automatic means also operating to increase the degree of throttling of the flow of gas and liquid through said first and second connections, respectively, in sequence in the order named responsive to an increase in pressure of said mixture above said predetermined value.

2,493,867—Recovery of Abietic Acid In the Form of Its Quarter Salt. Frederick H. Gayer, Chicago, Ill., assignor to Continental Research Corp., Chicago Heights, Ill. Filed May 3, 1947—Issued January 10, 1950.

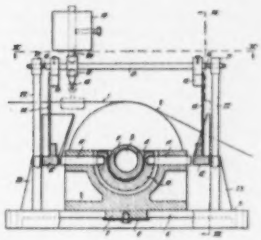
The method of recovering abietic acid from mixed resin acid material of the group, consisting of rosin, isomerized rosin, tall oil resin acids and their mixture, and alkali metal soaps of said materials, which comprises preparing an aqueous dispersion containing said resin acid material in partially neutralized condition at a free resin acids ratio in the range of from 10% to 75% and in from 10 to 50 parts by weight of water, and crystallizing abietic acid therefrom in the form of its quarter salt by permitting the dispersion to stand at a temperature of from about normal room temperature to about 100° C.

2,494,075 — Paper Jogger. Carl S. Weyandt, Homer City, Pa. Filed March 18, 1946—Issued January 10, 1950.

In a paper jogger the combination of a base, a rigid deck to support a stack of paper, fence means secured to the deck and having a paper stack engaging surface at right angles to the deck defining a corner, multiple spring means connected between the base and the deck to support the deck and said fence means for vibration in a manner such that the corner vibrates in a plane parallel to a plane angular to and intersecting the paper engaging surfaces of the deck and fence means, a vibratory motor having an armature member and an electromagnetic field member, and means to secure one of said motor members relative to the deck and the other relative to the base and provide magnetic coupling therebetween to vibrate the deck and jog both sides of the paper stack simultaneously.

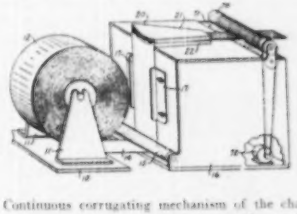
2,494,245—Wire Guide for Papermaking Machines. Karl Arvid Karlsson, Skapafors, Sweden. Filed April 8, 1946—Issued January 10, 1950.

A wire guide for paper making machines comprising in combination, a roll over which the wire travels, a shaft for said roll, an adjustable bearing for one end of said shaft, a frame having a guideway for said bearing extending in the longi-



tudinal direction of the wire, and a mechanism for shifting the position of said adjustable bearing in said guideway to cause the roll to neutralize an undesired side movement of the wire on the roll, said mechanism comprising elements carried by the adjustable bearing for reciprocating in the direction of its guideway within a predetermined range of movement with relation to the bearing, means operable by the shaft of the guide roll to reciprocate said elements as a unit within said range upon rotation of the shaft, means mounted in said frame to move as a unit in paths traversing those of said reciprocating elements in order to afford stop members therefor so as to thereby control the position of the range of movement of said elements with respect to the frame, and means in said frame operable by the wire in response to side movement thereof for shifting the position of said stop members with a resulting shifting of the range of movement of the reciprocable elements of the bearing with relation to the frame and a consequent shifting of the position of the adjustable bearing in its guideway to allow the guide roll to neutralize the slide movement of the wire.

2,494,431 — Continuous Corrugating Mechanism. Karl J. Eckstein, Hamilton, Ohio. Filed June 28, 1945—Issued January 10, 1950.



Continuous corrugating mechanism of the character described for corrugating a web of material which comprises two sets of fan-shaped interfitting guides, said guides being arranged in lines converging toward a common center substantially beyond the discharge end thereof, said guides terminating in an arc struck from approximately said common center, and auxiliary sets of guides

located respectively at the discharge ends of said two sets of guides and in relative alignment therewith, said auxiliary guides being arranged in lines diverging outwardly toward the discharge ends thereof and terminating in a plane transverse to the direction of travel of the web, the distance between the discharge ends of adjacent auxiliary guides measured in said transverse plane being substantially the same as the distance between the discharge ends of adjacent guides of said two sets measured on said arc.

2,494,297 — Composite Resinous Coated Metal and Process of Making Same. Charles H. Hempel, Manitowoc, Wis., assignor to Heresite & Chemical Company, a corporation of Wisconsin. Filed March 16, 1945—Issued January 10, 1950.

The method for coating a metal object which comprises applying a coating of an oil-free phenol-formaldehyde resin to the object, baking the coated object to completely polymerize the resin, then applying a coating of formaldehydeamine resin of the class consisting of ureaformaldehyde resin and melamine resin to the object, and then baking the object to completely polymerize the last applied coating.

2,494,492—Production of Rutile Titanium Dioxide. Lawrence E. Ross and Charles A. Tanner, Jr., Amherst, Va., assignors, by mesne assignments, to American Cyanamid Company. Filed January 31, 1942—Issued January 10, 1950.

A process for preparing a rutile seeding agent, which comprises treating an alkali metal titanate with a monobasic acid in sufficient amount to completely convert the alkali metal content to the salt of the monobasic acid and to theoretically convert about 20% to 50% of the titanium content to the salt of the monobasic acid, and boiling the resultant mixture for about one hour, whereby the titanium content is substantially converted to a rutile conversion seed showing rutile structure upon X ray analysis.

Canadian

462,096—Treatment of Ligno-Cellulose. Richard Dunlap Kehoe, Hadlyme, Connecticut, U.S.A., assignor to Paper and Industrial Appliances, Inc., New York, N.Y., U.S.A. Filed November 5, 1947—Issued December 27, 1949.

Apparatus of the class described, which comprises an enclosed heat-treatment chamber adapted to contain ligno-cellulosic material to be treated therein in non-submergence and a gaseous body of saturated steam maintained at super-atmospheric pressure and at a lignin-softening temperature, means for continually supplying such material into the chamber, means for discharging vapour-treated material from the chamber and means for fiberizing such discharged material, characterized in that said discharging means includes a hollow discharge housing having an annular laterally extending extruding discharge passage therethrough, a rotatable screw extending partially within the housing for passing vapour-treated material toward the extruding passage, and a horn element between the screw and the passage.

Apparatus according to claim 1, with the addition of apertures through the housing adjacent the screw but forward of the horn element through which residual liquor escapes from the vapour-treated material being compressed in the housing by the screw for thus becoming dewatered prior to encountering the horn element whereby the latter acts on the dewatered material on its way to the extruding passage.

Apparatus of the class described, which comprises an enclosed heat-treatment chamber adapted to contain ligno-cellulosic material to be treated in non-submergence therein and a gaseous body of saturated steam maintained at super-atmospheric pressure and at a ligno-softening temperature, means for supplying such material to the chamber, means for discharging vapour-treated material from the chamber prior to fiberizing it, and means for fiberizing such discharged material, characterized in that said discharge means includes a hollow discharge housing having an extruding passage leading therefrom, a rotatable screw extending partially within the housing for passing vapour-treated material toward the extruding passage, said housing having apertures therethrough adjacent to the screw through which liquor escapes from the vapour-treated material being compressed in the housing by the screw for thus becoming dewatered prior to encountering extrusion, and means in the housing adjacent the screw for minimizing rotation of the compressed material and thus facilitating dewatering comprising edged devices located on the inner periphery of the housing and having associated with them adjacent recesses extending parallel thereto.

The continuous process for treating a fibre-bearing ligno-cellulosic material to yield fibrous pulp, which comprises feeding such material to an enclosed chamber, subjecting material therein while in non-submergence to super atmospheric pressure at a lignin-softening temperature, and fiberizing such vapour-treated material, characterized by dewatering such vapour treated material to high consistency while within the chamber, and extruding such dewatered material from the chamber prior to being fiberized.

462,150—Rotary Paper Screen. Raoul Truchon and J. E. Laurent Pagé, Kenogami, Quebec, Canada. Filed November 14, 1947—Issued January 3, 1950.

In a paper pulp screen of the rotary cylinder type a sealing system comprising a cylinder head, a sleeve pressed on the cylinder head, a waterproof compound bearing fixed inside an end frame on which the said sleeve will rotate, a sealing compound made of graphited or any similar waterproofed material compressed between the end frame and the cylinder head by means of an all around gland bolted to the said frame, an interchangeable transmission unit, an end member comprising a main supporting frame having inwardly extending flanges of larger diameter than the cylinder, a central member bolted to the said supporting frame and on which the cylinder bearing and the transmission are mounted.

462,210 — Finishing and Coating of Fibrous Materials. Louis Amédé Lantz and Arthur Schofield, Manchester, England, assignors to The Calico Printers' Association Limited, Manchester, England. Filed July 12, 1943—Issued January 3, 1950.

The process of impregnating, coating and stiffening fibrous materials, which comprises coating one side of each of two webs with an aqueous solution containing a substance selected from the group consisting of polyvinyl alcohol and water-soluble partial polyvinyl alcohols, an acid catalyst, and an adehyde in a quantity amounting to from about 2.5 to 40 per cent by weaight expressed in equivalents of formaldehyde and based on the weight of polyvinyl alcohol, drying one of the coated webs, super-imposing the webs with their coated sides in contact whilst one is still damp, applying pressure to join the webs firmly together, and heating the composite fabric to dry it and to form in situ a polyvinyl acetal which is insoluble both in water and in organic solvents.

462,263 — Manufacture of Textile Cones. Charles K. Dunlap, Hartsville, South Carolina, U.S.A., assignor to Sonoco Products Company, Hartsville, South Carolina, U.S.A. Filed June 2, 1947—Issued January 3, 1950.

An apparatus for applying flock to the surface of textile cones and the like comprising means for coating the surface of said cones with adhesive, a flock applying station, means for conveying said adhesive coated cones past said flock applying station adapted to discharge flock transversely to and across the path of said adhesive coated cones in a sufficiently excessive quantity to effect a desired degree of flock application on the adhesive coated surface of said cones, a recovery chamber disposed opposite said flock applying station to collect the excess flock discharge at said flock applying station, and a system for continuous airborne recirculation of recovered flock from said recovery chamber to said flock applying station, said recirculating system including means for adding make-up flock and means for bleeding from said system substantially free of flock a sufficient portion of the air entering said recovery chamber to obtain effective recirculation of flock to said flock applying station.

462,416—Hydrochlorite Bleaching of Ground Wood. Daniel O. Adams and George B. Hughey, Covington, Virginia, U.S.A., assignors to West Virginia Pulp and Paper Company, New York, New York, U.S.A. Filed February 6, 1948—Issued January 10, 1950.

The method of hypochlorite bleaching of ground wood of the type rich in tannin and colour bodies, to yield a ground wood of a brightness at least equal to that which obtains by the hypochlorite bleaching of ground spruce wood, which comprises first extracting therefrom the tannin and colour bodies soluble in dilute aqueous caustic alkali solution at temperatures under the boiling point thereof, and then reacting the extracted ground wood with hypochlorite ion in alkaline solution in an amount not substantially in excess of 15 per cent available chlorine based on the dry ground wood.

The method of hypochlorite bleaching of ground wood of the type rich in tannin and colour bodies, to yield a ground wood of a brightness at least equal to that which obtains by the hypochlorite bleaching of ground spruce wood, which comprises first extracting therefrom the tannin and colour bodies soluble in dilute aqueous caustic alkali solution at temperatures under the boiling point thereof by treating same with a dilute solution of sodium hydroxide in quantity not substantially more than ten per cent sodium hydroxide based on the dry weight of the pulp, washing the so treated ground wood and then reacting the extracted ground wood with hypochlorite ion in alkaline solution in an amount not substantially in excess of 15 per cent available chlorine based on the dry ground wood.

How Valuable Are Patent Abstracts

The *P.T.J.* would like your opinion on the value to you of its patents section. Will you tell us:

1. No value, should be dropped.
2. Listing of number, title, inventor and ownership is sufficient.
3. Non-technical abstracts of only most important patents would be better than present system, 5 to 10 per week.

Please let us know how you feel. *You are the boss.*

THE EDITOR

FINANCIAL RECORD

PREFERRED STOCKS	Per Share Earnings Calendar Year 1948	Per Share Earnings 12 Mo. to Approx. 9/30/49	Indic. Annual Divid. Rate	Jan. 24 Approx. Market Price
Armstrong Cork Co. $3.75 Cum.	$46.33*	$38.47*a	$3.75	$101½
Armstrong Cork Co. $4.00 Cum. Conv.	46.33*	38.47*a	4.00	112
Celotex Corp. 5% Cum.	26.42c	7.59e	1.00	17⅛
Champion Paper & Fibre $4.50 Cum.	99.97f	37.50j	4.50	99½
Container Corp. of Amer. 4% Cum.	105.41	90.43	4.00	103⅛
Crown Zellerbach $4.20 Cum.	63.92i	57.02e	4.20	107¾
Dixie Cup Co. $2.50 Cum. Conv. Cl. A	10.10	10.44	2.50	52⅞
Flintkote Co. $4 Cum.	83.25	61.44	4.00	105¾
Robert Gair Co., Inc. 6% Cum.	17.08	12.88	1.20	18½
International Paper Co. $4 Cum.	263.00	245.41	4.00	104½
Johns-Manville $3.50 Cum.	209.89	204.89	3.50	127¼
Kimberly Clark Corp. 4½% Cum.	80.74	70.92	4.50	103¼
Kimberly Clark Corp. 4% Cum. Conv. 2nd	41.59*	42.20*	4.00	109¾
MacAndrews & Forbes 6% Cum.	62.23	64.10	6.00	136
Mead Corp. 4¼% Cum.	73.46	49.00k	4.25	91½
Mead Corp. 4% Cum. Conv. 2nd	29.91*	19.93k*	2.00	55¼
Paraffine Cos. Inc. 4% Cum. Conv.	156.11	74.77	4.00	101⅜
Rayonier Inc. $2 Cum.	16.43	10.76	2.00	51⅝
St. Regis Paper Co. 4.40% 1st A	79.90	29.04m	4.40	86½
Scott Paper Co. $3.40 Cum.	59.06	52.36	3.40	94⅜
U. S. Gypsum Co. 7% Cum.	314.45	281.64	7.00	183½
United Wallpaper Inc. 4% Cum. Conv.	(d)0.79	15.43	2.00	27
West Virginia Pulp & Paper 4½% Cum.	79.45c	69.93h	4.50	108½
COMMON STOCKS				
APW Products Co.	$0.73	(d)$1.01	—	3⅜
American Writing Paper Corp.	(d)0.15	0.05	—	0½
Armstrong Cork Co.	7.54	6.13a	$3.00	49¼
Celotex Corp.	7.21c	1.87e	1.00	19½
Certain-Teed Prods. Corp.	4.02	3.09	1.00	16½
Champion Paper & Fibre	8.70f	3.20j	2.00	33⅞
Congoleum Nairn Co.	5.78	4.92a	2.00	27⅜
Container Corp. of America	10.12	8.50	4.00	41⅜
Crown Zellerbach	7.16i	6.33e	2.00	31⅝
Dixie Cup Co.	6.70	7.00	1.50	36¾
Eastern Corp.	4.76	d0.07	—	14⅜
Flintkote Co.	5.86	4.14	2.50	31⅝
Robert Gair Co., Inc.	2.67	1.96	0.70	7⅞
Great Northern Paper Co.	4.63	5.21	2.80	41¾
International Paper Co.	8.36	7.80	2.50	34⅞
Johns-Manville Corp.	5.22	5.07	2.50	47⅜
Kimberly Clark Corp.	5.02	4.32	1.65	24⅜
MacAndrews & Forbes Co.	3.68	3.79	2.50	40¼
Marathon Corp.	4.11c	3.29e	1.40	26
Mead Corp.	6.36	3.98k	1.60	16⅞
National Container Corp.	2.28	1.04	0.40	8⅜
Paraffine Cos. Inc.	2.45	1.15	1.20	19⅝
Rayonier, Inc.	9.09	5.52	2.00	25¾
Ruberoid Co.	10.72	8.52	3.25	57½
St. Regis Paper Co.	2.71	0.89m	0.60	8¾
Scott Paper Co.	4.15	5.38	3.00	67⅜
Sutherland Paper Co.	6.02	5.12	2.50	39¾
Union Bag & Paper Corp.	9.17	5.36	2.50	27½
United Board & Carton	2.04b	(d)1.61g	—	8⅜
U. S. Gypsum Co.	15.04	13.43	9.00	112
United Wallpaper	(d)0.10	0.42	—	3⅞
West Virginia Pulp & Paper	11.33c	9.20h	3.00	47½

(a) 12 months to approximately 6/30/49
(b) Year ended 11/23/48
(c) Year ended 10/31/48
(d) Deficit
(e) 12 months to approximately 10/30/49
(f) 11 months to 3/31/49
(g) 12 months to approximately 11/13/49
(h) 12 months to approximately 7/31/49
(i) 12 months to approximately 1/30/49
(j) 6 months to 9/30/49
(k) 12 months to approximately 10/2/49
(m) 12 months to 12/31/49.
(*) Earnings per combined preferred shares.

Dividends Declared

Corrugated Paper Box Co., Ltd., has declared a dividend of 37½c per share on common stock and $1.25 per share on the preferred stock, payable March 1 to stockholders of record February 10.

St. Regis Paper Co. has declared a regular quarterly dividend of 15 cents on common, payable March 1 to stockholders of record February 3.

St. Regis Paper Co. has declared a regular quarterly dividend of 15 cents a share on the common stock, payable March 1 to stockholders of record February 8.

Gair Co. of Canada Ltd. has declared a dividend of $1 on preferred stock, payable March 1 to stockholders of record February 11.

E. I. du Pont de Nemours & Co., Inc., was owned by 109,945 stockholders as of December 31, 1949, an increase of 5,497 over the number recorded at the close of the third quarter of 1949, and an increase of 15,044 over the number of holders as of December 31, 1948.

Albany Business Outlook Good

ALBANY, N. Y. — General business conditions in paper mills of this city and vicinity are regarded as good and are expected to continue at about the same level during the year. What some believed would only be a mild adjustment period during 1949 and what others feared would be a depression has turned out to be a slight recession from the postwar peak. A few manufacturers call it a return to the prewar normal. However, a survey of major industries completed on January 11 indicates that the working forces are slightly lower than a year ago. A few plants have also cut their labor needs by labor saving machinery.

The Albany Felt Co. reported that its force totalled about 1,065 hands following a decrease of 940 on September 1. The schedule has been increased from 40 to 48 hours weekly with some Sunday work. The Behr-Manning division of the Norton Co., Watervliet, has recalled about 200 of the 300 workers laid off last Spring. Huyck & Sons, Rensselaer, recalled about 75 hands during the past month bringing its employment total to about 1,025 persons.

Building

- **FOR THE PAPER INDUSTRY**
- We design, build, and equip paper and pulp mills ... steam generating plants ... and facilities for eliminating stream pollution.
- Under one contract and one responsibility, we deliver jobs complete, ready for operation.
- We also furnish engineering reports and surveys. Current cost data available at all offices.

The H K Ferguson Co.
INDUSTRIAL ENGINEERS AND BUILDERS

THE FERGUSON BUILDING • CLEVELAND, OHIO
OFFICES IN NEW YORK, HOUSTON, CHICAGO, CINCINNATI AND LOS ANGELES

PRICES

The prices below reflect general market quotations at the mill level on the standard grades in which the normal volume of business is being done. Does not include occasional spot offerings.

NEW YORK

Delivered Ports

Standard News, per ton—

Rolls, contract	$100.00/	—
Sheets	115.00/	—

F.o.b. Mills, Carload freight allowed, dock N. Y.

Kraft— per cwt., 40# base wgt.

Standard Wrapping Rolls	$6.50/	—
No. 1 Wrapping Rolls	7.25/	—
Standard Bag	6.00/	—

Tissues—per ream 25x36 (480) 10 lbs. 2500 lbs. or more

Wh. No. 1 Frd.	$1.55 /	—
Wh. No. 1 M. G.	1.50 /	—
Wh. No. 1½	1.35 /	1.40
Wh. No. 2	1.10 /	1.20
Kraft Anti-Tar	1.37½/	—
White Anti-Tar	1.75 /	—
Shrd. Wh. No. 1 per lb.	.11½/	—

Toilet— per case of 100 rolls—1 M sheets.

Unbleached 4½x4½	$5.75/	—
Bleached 4½x4½	6.95/	—
Bleached 4½x5	8.80/	—
Per Case of 50 rolls—2000 sheets		
Unbleached 4½x4½	$5.75/	—
Bleached 4½x4½ *	6.80/	—
Per Case of 100 rolls—1000 sheets		
Facial, 4½ x 5, 2 ply	$8.95/$9.45	

Paper Towels—per case of 3750.

Wh. Jr. M'tif'd 9¼x9½	$5.25
Br. Sr. M'tif'd 10x12	3.60
Br. Jr. M'tif'd 9½x9¾	3.10
Br. Jr. Sgl. fold 10x10¾	3.15
Blchd. 7½ x 11, 24/25 rolls	$3.95/$6.25

Manila, per cwt.

No. 1 Jute Tag 40 lb., sheets*	$15.05/$17.50
Reg. Jute M.F. Manila, sheets*	13.50/ 15.50
Wrapping Manila	8.75/ 10.50
Printing Manila	10.00/ 11.00

* Less usual allowance for rolls.

Boards, per ton—

Filled News	$72.50/$75.00
Plain Chip	70.00/ —
Blchd. Mla. L-d. Chip*	97.50/ —
White Pat. coated*	115.00/ —
Kraft Liners 42 lb.	100.00/
Kraft Corr. .009	105.00/
Binders Boards	110.00/116.00

* Base Prices per 10 tons. Less than 10 ton but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50, basis 101.120, add $5.

WORLD WOOD PULP MARKETS

First Quarter Contract Prices, Per Short Air-Dry Ton

	Delivered, with varying freight allowance		Full freight allowance* On dock Atlantic Ports		
	U. S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$65.00/ —	$65.00/$67.50			
Soda, Bleached	113.00/ —	113.00/ —		Competitive	
Sulphate, Bleached	118.00/126.00	126.00/ —	125.00/128.00		
Sulphate, Unbl'd North'n		82.50/105.00	82.50/ 85.00	with	
Sulphate, Unbl'd South'n	80.00/ 82.50				
Sulphite Blchd. (S'ftw'd)	118.00/ —	118.00/ —	118.00/ —	Domestic	Competitive
Sulphite, Blchd. (H'dw'd)	113.00/ —				
Sulphite, Unbleached	100.00/ —	100.00/ —	100.00/ —	Grades	
Sulphite, Unbl'd (Glassine)	105.00/ —	105.00/ —	104.00/105.00		

* Ex dock quotations average $5.00 lower.

WASTE PAPER MARKET

Prices to Mills*, (Per Ton) F.o.b. Cars Shipping Point

	New York	Philadelphia	Boston	Chicago
	Jan. 23	Jan. 18	Jan. 18	Jan. 3
No. 1 Mixed Paper	$9.00/ 10.00	$ —/10.00	$9.00/ —	$10.00/ —
Boxboard Cuts	$9.00/ 10.00	7.00/ 8.00	/ 8.00	13.00/ —
Mill Wrappers	11.00/ 12.00	10.00/ 11.00	11.00/ 11.50	12.00/ —
No. 1 News	13.00./ 14.00	10.00/ 12.00	11.00/ 12.50	18.00/ —
Over-issue News	15.00/ 16.00	12.00/ 15.00	12.00/ 14.00	21.00/ —
Corrugated Containers	17.00/ 18.00	16.00/ 18.00	17.50/ —	22.00/ —
New Corrugated Cuts	19.00/ 20.00	20.00/ —	19.00/ 21.00	25.00/ —
Double Kraft Ld. Corr. Cuts	34.00/ 35.00	30.00/ 35.00	25.00/ —	40.00/ —
Used Kraft Bags	28.00/ 30.00	25.00/ —	25.00/ 30.00	25.00/ —
No. 1 Brown Kraft Paper	30.00/ 35.00	25.00/ 30.00	25.00/ 30.00	30.00/ —
Super Resorted Br. Kraft	35.00/ 40.00	30.00/ 35.00	35.00/ 40.00	40.00/ —
New Br. Kraft Env. Cuts	65.00/ 70.00	60.00/ 65.00	60.00/ 65.00	55.00/ —
New Br. Kraft Cuts	40.00/ 45.00	45.00/ 50.00	45.00/ —	50.00/ —
No. 1 Gdwd. Shvs.	25.00/ 30.00	20.00/ 25.00	25.00/ —	23.00/ —
White Newsblanks	55.00/ 60.00	55.00/ —	55.00/ 60.00	45.00/ —
No. 1 Flyleaf Shvs.	30.00/ 35.00	25.00/ 30.00	35.00/ 45.00	40.00/ —
No. 1 Soft Wht. Shvs.	80.00/ 85.00	65.00/ 70.00	65.00/ 70.00	60.00/ —
Super Soft Wht. Shvs.	85.00/ 90.00	70.00/ 75.00	85.00/ 95.00	70.00/ —
Hd. Wht. Shvs.	85.00/ 90.00	80.00/ 85.00	90.00/100.00	80.00/ —
Hd. Wht. Env. Cuts	105.00/115.00	90.00/ 95.00	105.00/ —	90.00/ —
New Manila Env. Cuts	65.00/ 70.00	60.00/ 65.00	60.00/ 70.00	55.00/ —
Col. Tab Cards	35.00/ 40.00	25.00/ 30.00	35.00/ —	40.00/ —
Manila Tab Cards	65.00/ 70.00	65.00/ 70.00	75.00/ 80.00	65.00/ —
No. 1 Mixed Ledger	35.00. 37.50	30.00/ 35.00	34.00/ 37.50	40.00/ —
White Ledger	45.00/ 50.00	45.00/ 50.00	40.00/ 50.00	50.00/ —
Mixed Books & Mags.	13.00/ 15.00	10.00/ 12.00	12.00/ —	15.00/ —
No. 1 Rep'd Hvy. Books & Mags.	25.00/ 30.00	22.00/ —	23.00/ 25.00	26.00/ —

* Includes brokers' fee.

The following prices are representative distributors' resale prices:

Rag Content Bonds and Ledgers—

White, 20 lb.

Bonds

	4 Ctns.
	per cwt.
100% Rag. Ex. No. 1	$51.40/$53.90
100% Rag	44.55/ 46.15
75% Rag	33.90/ 35.40
50% Rag	28.10/ 29.55
25% Rag	24.85/ 26.80

Ledgers

	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$52.65/$54.55
100% Rag	45.65/ 46.40
75% Rag	35.15/ 36.10
50% Rag	29.40/ 30.05
25% Rag	26.15/ 26.80

Sulphite Bonds and Ledgers

White, 20 lb.

Bonds

	4 Ctns.
	per cwt.
Watermarked	$16.55/$17.50
Plain	15.60/ 15.95

Ledgers

	4 Ctns.
	per cwt.
Watermarked	$18.05/$18.80

White Book

	Conversion Coated Case
	per cwt.
No. 1	$19.75/$20.90
No. 2	19.25/ 19.65
No. 3	17.75/ 18.90
Machine Coated	
No. 1	16.40/ 16.65
No. 2	14.40/ 15.15
Uncoated	
No. 1 Antique (Watermarked)	16.40/ 17.90
Offset	15.15/ 16.65
A Grade E. F.	15.40/ —
A Grade S. C.	15.90/ 16.15
B Grade E. F.	14.90/ 15.15
B Grade S. C.	15.40/ 15.65

§ Indicates a price change. Details reported in *Trends*.

Rag Market

New Domestic Cotton Cuttings

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.	
White Shirt	$10.25/	$11.00
Unbleached Muslin	10.00/	10.75
Light Silesias	6.50/	7.50
White Black Blue Overalls	5.50/	6.25
Blue Overalls	4.50/	5.00
Fancy Shirt	4.50/	5.00
Percales	5.50/	6.00
Light Prints	5.50/	6.00
No. 1 Washables	2.75/	3.00
Bleachable Khaki	4.50/	5.00
Unbleachable Khaki	3.75/	4.50
Cottonades	4.00/	4.75
Lt. Flannelettes	6.25/	7.25
Men's Corduroy	3.50/	4.25
Women's Corduroy	3.00/	3.75
Canton Flannels, Blchd.	8.50/	9.00
Underwear Cutters, Blchd.	10.75/	11.25
Underwear Cutters, Unblchd.	10.50/	11.00

Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.	
No. 1 Whites, Repacked	$4.25/	$4.75
No. 1 Whites, Miscllaneous	3.00/	3.50
No. 2 Whites, Repacked	3.00/	3.25
No. 2 Whites, Miscellaneous	2.75/	3.00
Cotton Pants & Overalls	2.50/	2.75
Thirds and Blues, Repacked	2.50/	2.75
No. 1 Roofing Rags	1.55/	1.65
No. 2 Roofing Rags	1.45/	1.55
No. 3 Roofing Rags	1.40/	1.50
No. 4 Brussels & hrd. Bck'd crpts.	1.25/	1.40
Roofing Bagging	1.25/	1.35

New Foreign Cotton Cuttings

(Prices to Mills, F.o.b. Dock, N. Y.)

	Per 100 lbs.	
New Dark Cuttings	$2.75/	$3.00
New Mixed Cuttings	2.75/	3.00
Light Silesias	6.50/	7.00
Light Flannelettes	5.50/	6.00
New White Cuttings	10.00/	10.50
New Unbleached Cuttings	10.00/	10.50

Fancy Shirt Cuttings	4.50/	4.75
Light Prints	4.25/	4.50
Bleachable Khaki, No. 1	4.25/	4.50
Unbl. Khaki, No. 1	4.00/	4.25

Old Foreign Rags

(Prices to Mills, F.o.b. Dock, N. Y.)

	Per 100 lbs.	
No. 1 White Cottons	$6.50/	$7.00
No. 2 White Cottons	5.50/	6.00
No. 3 White Cottons	4.00/	4.50
No. 4 White Cottons	3.00/	3.50
Extra Light Prints	4.50/	5.00
Old Light Prints	4.00/	4.25
Med. Light Prints	2.50/	2.75
Dutch Blue Cottons	3.25/	3.50
Checks and Blues	2.75/	3.00
Linsey Garments	2.10/	2.40
Dark Cottons, European	2.00/	2.10
Dark Cottons, Egyptian	1.85/	2.00
Old Shopperies	1.75/	1.85
New Shopperies	2.00/	2.25

Bagging

(Prices to Dealers, f.o.b. N. Y.)

	Per 100 lbs.	
Foreign Gunny	$6.50/	$7.00
Domestic Gunny, No. 1	6.50/	7.00
Heavy Wool Tares	6.00/	6.50
Foreign Manila Rope	4.50/	4.75
Domestic Manila Rope	5.00/	5.25
Jute Strings	5.50/	6.00
No. 1 Sisal Strings	3.00/	4.50
Mixed Strings	1.15/	1.30
Heavy Baling Bagging	7.50/	8.00
Paper Mill Bagging	4.00/	4.25
No. 1 Scrap Burlap		
Foreign	5.75/	—
Domestic	6.00/	—
Austr. Wool Pouches	—/	6.00
New Burlap Cuttings	6.00/	7.00

MATERIALS

Aluminum, sulfate:
- coml. bags, wks. ..... cwt. 1.50
- iron-free 2.75

Alcohol, ethyl:
- tax free, dms. c.l. ..... gal. .39
- delvd. East Miss.

Casein, acid-prec.:
- dom. sh. pt. c.l. ..... lb. .24 / .25
- imp. ex-dock ..... lb. .20½/ .21

Caustic soda:
- c.l. wks. solid, 76%, cwt. 3.05
- dak. & grd. 400-lb. drums 3.45
- 100-lb. drums 3.95
- liquid 50% tanks 2.40
- liquid 73% tanks 2.50

China clay:
- dom. air-float, filler, c.l. wks. ton 10.00
- water-washed 11.00
- coating ..... 16.00 /30.00
- imported, ex whse. ..... short ton 15.20 /28.35

Chlorine:
- single-unit tanks, works ..... cwt. 2.40
- multi-unit ..... cwt. 2.70 / 3.90

Formaldehyde:
- USP, tnh. dms. c.l. wks. ..... lb. .0570
- l.c.l. E. wks ..... .0620

Fuel oil:
- Bunker C, No. 6 Cal. livy tanks, refinery ..... bbl. 1.25 / 1.55
- light ..... bbl. 1.65 / 2.10

Hydrogen peroxide:
- USP, 35% chys. E. of Miss. lb. .23½

Lime:
- hydrated, bags, wks. Buffalo ton 13.50

Rosin.
- B gum, drms. c.l. Savan. ..... cwt. 5.75
- GHIK gum, do. ..... cwt. 6.39
- B wood, do. ..... cwt. 4.25
- FF wood, do. ..... cwt. 5.50

Rosin size:
- 70%, gum & pale grds, tank cars, south. sh. pt. ..... cwt. 5.47 / 5.63

Salt cake:
- dom. bulk, delvd. ..... ton 22.00

Soda ash:
- light, 58%, bags, wks. ..... cwt. 1.25
- bulk ..... cwt. 1.00

Sodium silicate 40°:
- turbid, c.l. wks. ..... cwt. 1.00
- l.c.l. wks. ..... 1.25 / 1.35

Sodium peroxide:
- dms. c.l. E. of Miss. ..... lb. .18
- l.c.l. do ..... lb. .18½/ .19

Soybean, protein:
- chem. isol, wks. c.l. ..... lb. .19 / .19½
- Cinn. and Chic.

Sulfuric acid:
- 60° Be. chys. c.l. ..... cwt. 1.40
- E. wks.
- l.c.l. ..... cwt. 1.80 / 2.50

Sulfur:
- crude, c.l. mines, contract, long ton 18.00
- f.o.b. vessels Gulf 19.50
- Export, f.o.b. Gulf 22.00

Sulfur dioxide:
- liquid, coml. cyl. wks. ..... lb. .09
- multi-unit cars ..... lb. .0535

Starches:
- pearl corn, bags, c.l. Chic. cwt. 4.87
- white dextrines, c.l. Chic. cwt. 6.14
- potato, Idaho, c.l. wks. ..... cwt. 5.25 / 5.50
- potato, Maine, c.l. wks. ..... cwt. 4.75 / 5.00
- tapioca, conv. dextrines cwt. 8.75 / 9.00
- medium grds, Gulf ports 6.50
- low, Siam, on dock NY ..... 4.00 / 5.50

Talc:
- domestic, 50-lb. sacks, c.l. wks. ..... ton 23.00 /28.00

Titanium dioxide:
- anastase, c.l. deld., bags ..... lb. .19½
- l.c.l. deld. ..... lb. .20
- rutile, c.l. deld. ..... lb. .21½
- l.c.l. deld. ..... lb. .22½

IMPORTS

IMPORTS AT NEW YORK

Week Ending January 21

Newsprint

News Syndicate Co., Colabee, Baie Comeau, 5,729 rolls.

Packing Paper

S. Stern Henry Inc., America, Havre, 2 cs.

Drawing Paper

H. Reeve Angel & Co. Inc., America, London, 3 cs.

Lansen Naeve Co., American Ranger, Havre, 11 cs.

Filter Paper

H. Reeve Angel & Co. Inc., America, London, 23 cs.

Parchment

Andrews Paper Co., America, London, 1 cs. (animal).

Wrapping Paper

The Borregaard Co. Inc., Sparreholm, Gothenburg, 193 rolls.

Wallpaper

Liebermann & Waelchli, Pioneer Lake, Yokohama, 2 cs. (grass cloth).

Tissue Paper

B. F. Drakenfeld & Co., Franconia, Liverpool, 61 cs. (gauze carbonizing).

Gummed Paper

B. F. Drakenfeld & Co., American Chief, Manchester, 84 cs.

Sulphite Paper

Guaranty Trust Co., Sparreholm, Gothenburg, 141 rolls.

Printing Paper

W. D. Peck, American Chief, Glasgow, 4 pkgs.

Stevens Nelson Paper Corp., American Merchant, London, 1 cs.

S. H. Pomerance Co., American Merchant, London, 2 cs.

Malmar Paper Co., Agwidale, Havana, 10 ctns.

Baryt Paper

W. Reimerdes, American Merchant, London, 7 cs.

Baryta Coated Paper

Lep Transport, Inc., American Merchant, London, 44 rolls, 1 cs.

Boxboard

General Motors Overseas Operations, Stockholm, Gothenburg, 51 bdls.

General Motors Overseas Operations, Sparreholm, Gothenburg, 80 bdls.

Hardboard

Elof Hansson, Inc., Sparreholm, Gothenburg, 262 bls

J. H. Schroeder Banking Corp., Sparreholm, Gothenburg, 923 ctns.

Rags, Baggings, Etc.

A. de Vries Trading Corp., Flying Enterprise, Rotterdam, 51 bls. scrap bagging.

M. O. Schimmel Corp., Flying Enterprise, Rotterdam, 50 bls. cotton waste.

Loumar Textile By Products, Flying Enterprise, Rotterdam, 71 bls. old bagging.

E. J. Keller Co. Inc., Flying Enterprise, Rotterdam, 60 bls. jute bagging.

(———), Flying Enterprise, Rotterdam, 54 bls. jute bagging.

Midwest Waste Materials Co., Flying Enterprise, Antwerp, 83 bls. jute rags.

Fibre Service, Lista, Rouen, 83 bls. cotton waste.

Castle & Overton, Inc., American Chief, Dublin, 109 bls. old jute bagging.

E. J. Keller Co., Inc., American Chief, Manchester, 145 bls. scrap bagging, 88 bls. jute waste.

E. Butterworth & Co. Inc., American Chief, Manchester, 141 bls. old bagging.

Leigh Textile Co., American Chief, Manchester, 43 bls. cotton waste.

(———), American Chief, Glasgow, 72 bls. paper stock, 24 bls. rags.

J. P. Fleissig, Hellenic Sky, Naples, 217 bls. dark cottons.

New England Waste Co., Exochorda, Genoa, 43 bls. cotton waste.

E. J. Keller Co. Inc., Exochorda, Genoa, 125 bls. old jute rags.

Midwest Waste Materials Co., Exochorda, Genoa, 5 bls. old jute rags, 315 bls. old rags.

Bank of The Manhattan Co., Exochorda, Genoa, 128 bls. old rags.

Loumar Textile By Products, Mohamed Ali El Kebir, Genoa, 134 bls. old bagging.

Cowa Co., Mohamed Ali El Kebir, Genoa, 178 bls. cotton waste.

Chase National Bank, Franconia, Liverpool, 4 bls. wool rags.

W. Barnet & Son, Franconia, Liverpool, 8 bls. wool rags.

(———), Franconia, Liverpool, 119 bls. wool rags.

American Express Co., Franconia, Liverpool, 14 bls. wool rags.

Old Rope

E. J. Keller Co. Inc., Flying Enterprise, Antwerp, 110 bls.

(———), American Chief, Glasgow, 66 bls.

Woodpulp Boards

Parsons & Whittemore, Inc., Stockholm, Gothenburg, 138 rolls, 303 bls.

IMPORTS AT PORTLAND

Week Ending January 21

Pulp Sales Corp., Sparreholm, Jacobstad, 1007 bls. prime unbleached extra strong sulphite pulp, 1680 bls. 3rd quality strong sulphite pulp, 2,185 bls. prime unbleached kraft sulphate pulp, 1,275 bls. prime unbleached strong sulphite pulp, 2,820 bls. prime unbleached kraft sulphate pulp.

IMPORTS AT BOSTON

Week Ending January 21

Crane Co., American Merchant, London, 19 bls. paperstock, 6 bls. canvas cuttings.

Pulp Sales Corp., Sparrcholm, Jacobstad, 9,342 bls. prime unbleached kraft sulphate pulp, 265 bls. prime extra strong sulphite pulp, 523 bls. prime unbleached bleachable sulphite pulp, 1,060 bls. prime strong unbleached sulphite pulp, 262 bls. unbleached extra strong sulphite pulp.

Gottesman & Co. Inc., Sparrcholm, Gothenburg, 2,540 bls. dry sulphate pulp.

Gottesman & Co., Inc., S.S. Tidaholm, Svano, Sweden, 913 bls. unbleached sulphite pulp.

IMPORTS AT PHILADELPHIA

Week Ending January 21

F. Whittaker, American Chief, Manchester, 10 bls. rags.

J. H. Weil, American Chief, Manchester, 16 cs. tracing cloth.

E. J. Keller Co. Inc., American Chief, Manchester, 147 bls. paperstock.

Castle & Overton, Inc., American Chief, Belfast, 36 bls. paperstock.

Corn Exchange Bank Trust Co., Marna Dan, Callao, 47 bls. waste new sweater clips.

The Borregaard Co. Inc., Sparrcholm, Gothenburg, 1,512 bls. rolls wrapping paper.

C. O. Keferstein, Amsteldyk, Rotterdam, 8 rolls strawpaper.

IMPORTS AT BALTIMORE

Week Ending January 21

Burnett Foreign Trading Co., Lista, Rouen, 41 bls. cotton waste.

Darmstadt Scott & Courtney, American Chief, Manchester, 59 bls. old bagging.

E. J. Keller Co. Inc., American Chief, Glasgow, 202 bls. bagging.

F. P. Gaskell Co., American Chief, Glasgow, 75 cs. coated paper (for Cigarette tips).

(———), American Chief, Glasgow, 115 bls. old bagging.

IMPORTS AT NORFOLK

Week Ending January 21

A. de Vries Trading Corp., Lista, Rouen, 92 bls. scrap bagging.

E. J. Keller Co., Inc., Exochorda, Genoa, 72 bls. old jute rags.

IMPORTS AT NEWPORT NEWS

Week Ending January 21

Gottesman & Co., S.S. Stegeholm, Svano, Sweden, 1,559 bls. unbleached sulphite pulp.

FOREIGN NOTES

Australian Notes

Imports of newsprint into Australia during the month of October, 1949, totaled 17,813 tons — 16,661 tons in reels and 1,152 tons in sheets. This was a big increase over the August and September imports (5,033 tons in reels in August and 9,442 tons in reels in September).

Imports of other printing papers were as follows — figures hundredweights of 112 pounds: Antique, 106 (all from U.K.); imitation art, 471 (U.K. 450, Sweden 21); machine processed coated, 395 (all from U.K.); other coated, 1,782 (U.K. 1,368, U.S.A. 414); monotype, 40 (all from U.K.); lithographic machine glazed, 315 (Sweden 251, U.K. 64); machine glazed except litho, 129 (U.K. 69, Sweden 60); esparto one side supercalendered, 80 (all from U.K.); one side supercalendered except esparto, 2,271 (Finland 1,988, Norway 283); machine finished containing 25 percent or less mechanical pulp, 20 (all from U.K.); other printings containing 25 percent or less mechanical pulp, 1,213 (U.S.A. 485, Norway 411, U.K. 287); magazine and other printings containing more than 25 percent mechanical pulp, 3,194 (U.K. 2,545, U.S.A. 359, Norway 193, Sweden 97); and glazed imitation parchment, 234 (Sweden 215, Norway 19). It will be noted that imports from the United States were up somewhat.

* * *

Australian Paper Manufacturers Ltd. announces its intention of raising output by more than 50 percent above the past year's figure. This will actually mean increasing the production of paper and paperboard to 202,000 tons annually which will be five times the 1930 production. Capacity of the Maryvale pulp mills is being expanded from 40,000 tons to 67,000 tons a year, while that of the mill for producing bleached pulps will also be increased. At the Fairfield mill at Botany the most modern type of machinery is now being installed as it is at the new mill at Petrie near Brisbane.

* * *

Registered recently: Ballarat Clay Co. Pty. Ltd., treatment of clays for paper. Works — Ballarat Paper Mills site, Sutton street, Ballarat, Victoria.

* * *

The first accounts of Paperholdings Ltd., from December 2, 1948, to June 30, 1949, disclose an aggregate profit of £4,521, from which £400 will be required for taxation. Dividends received from subsidiaries totaled £7,320, against which £836 will be set aside for taxation. Ordinary dividend for the period was at the rate of 7 percent, tax paid. The chairman of directors, H. Ruelberg, says that the problems of installing new machinery have been overcome, but during the latter half of the past year production fell off because of lack of trained staff and continued power failures.

* * *

Cumberland Paper Board Mills Ltd. reports a net profit of £36,003 for the financial year ended September 30, 1949, compared with the £36,214 of the previous 12 months. Ordinary dividends is at 7 percent. Australasian Paper and Pulp Co. Ltd. now owns all but 700 of the shares and when these are transferred the Cumberland company will go into liquidation.

* * *

The Western Australian Government Statistician reports that during the nine months ended March 31, 1949, imports into that State included: 8,832 hundredweights writing and typewriting paper valued at £66, 277 (£63,576 worth from overseas); 138,436 hundredweights printing paper valued at £391,692 (£206,108 worth from overseas); 42,822 hundredweights wrapping paper valued at £220,221 (£66,785 worth from overseas); other papers valued at £87,848 (£59,224) and paper boards valued at £77,144 (£19,920). Exports of pulp, paper and board were valued at £29,079; while exports of paper manufactures and stationery totaled a value of £35,684.

* * *

The Full Bench of the Australian Industrial Commission recently advocated incentive payments as a way of increasing production. The commission said that men working under incentive rates produced more than might be expected of employes on time rates. "The incentive systems should be adopted because they are essential to the economy of Australia. They must, however, be covered by proper conditions and adequate safeguards to protect all concerned."

* * *

At the annual general meeting of the Bowater Paper Co. Ltd., R. J. Brideson, of the company's Melbourne office, was appointed a director.

* * *

C. J. Waugh and T. Swinburne have been appointed directors of Nettl Paper Converters Ltd. in place of E. H. Noske and A. E. Dowling, who have resigned.

Paper Industry of Ireland

According to the Report on Companies, issued by the Department of Industry and Commerce in the Republic of Ireland, for the year ended December 31, 1948, on that date there were 12 companies in operation as manufacturers of paperboard and paper, with a total nominal share capital of £549,600, of which £360,103 had been paid up. Of these companies nine were private and three were public the nominal and paid up share capitals of which were £84,600 and £25,403; and £465,000 and £334,700 respectively.

* * *

There were 9 companies engaged in the cardboard box, carton and show card manufacturing industry with a total nominal share capital of £225,800, of which £117,508 had been paid up. All these were private companies.

* * *

There were two companies in operation engaged in the manufacture of wallpaper, with a total nominal share capital of £76,000 of which £73,102 had been paid up. One of these was a private company with a nominal share capital of £6,000 of which £3,102 was paid up; the public company had a nominal share capital of £70,000 fully paid.

To Administer Anti-Pollution Law

Appleton, Wis.—Theodore F. Wisniewski, a professional engineer who has worked for many years on sanitary problems for the Wisconsin state board of health, has been appointed the first full-time commissioner to administer a stronger and more punitive anti-pollution law adopted by the 1949 legislature.

Pulp and Paper Manufacture in the U. S.

November 1949

Prepared by Bureau of the Census, Industry Division, Paper and Printing Unit

Paper and Board Production during November amounted to 1,920,294 tons, according to the Bureau of the Census, Department of Commerce. This reflects a decrease of almost 2 percent from the October figure, but is almost 3 percent over that reported for November a year ago. In terms of the production base, the industry operated at 86.4 percent, with the paper and board sections operating at 83.7 and 90.1 percent, respectively. The comparable ratios for October were: Total 88.6 percent; paper, 85.9 percent; and paperboard, 91.2 percent. The building materials section of the industry operated at 83.6 percent during November, as compared with 90.5 percent for October.

U. S. PAPER AND BOARD: PRODUCTION, BY TYPE, NOV. 1949

(Tons of 2,000 pounds)

Type of Paper	1949 November [1]	1949 October [*]	November 1949
ALL TYPES, TOTAL	1,920,294	1,953,018	1,865,579
Paper, total	833,332	838,807	828,052
Newsprint	71,160	73,195	77,477
Groundwood printing and specialty paper, total	69,424	67,225	70,440
Printing	52,621	49,837	44,064
Converting	13,717	14,294	23,198
Other	3,086	3,094	3,178
Book paper, total	195,804	199,168	190,279
Printing	147,447	148,839	146,826
Converting	47,655	49,668	39,471
Other	702	661	4,482
Fine paper, total	93,339	93,235	85,660
Writing, total	72,163	71,644	65,808
Rag (including index)	10,845	11,349	10,544
Chemical wood pulp	61,318	60,295	55,264
Cover and text	6,318	6,249	5,564
Bristols (except rag index)	7,291	7,401	7,458
Thin	5,731	5,419	5,097
Other	1,836	2,522	1,733
Coarse paper, total	269,166	267,024	268,132
Glassine, greaseproof, and vegetable parchment	11,992	12,309	10,622
Wrapping, total	70,161	74,239	72,736
Unbleached kraft	36,724	38,259	35,213
Other	33,437	35,980	37,523
Bag, total	62,120	56,875	61,862
Unbleached kraft	57,402	53,037	57,957
Other	4,718	3,838	3,905
Shipping sack	48,759	46,333	48,135
Converting, total	76,134	77,268	74,777
Unbleached kraft	37,395	40,063	42,381
Other	38,739	37,205	32,396
Special industrial	22,675	24,447	27,325
Sanitary	87,494	90,240	81,366
Tissue	17,621	17,808	18,673
Absorbent	6,649	6,465	8,206
Paperboard, total	873,913	885,345	818,170
Liners	293,830	297,618	283,033
Corrugating material	131,742	142,780	131,954
Container chip and filler board	23,816	23,420	27,888
Folding boxboard (for use in folding box plants only)	195,679	197,807	185,966
Set-up boxboard (for use in set-up box plants only)	61,647	64,203	53,510
Cardboard	6,743	6,258	6,905
All other paperboard	160,456	153,259	128,914
Wet machine board, total	10,183	10,294	11,730
Shoe board	3,495	3,219	3,728
Binder board	2,921	3,038	4,114
Other	3,767	4,037	3,888
Building materials made from pulp, total	202,866	218,572	207,627
Building paper	110,395[2]	120,812[2]	100,784
Building board	92,471	97,760	106,843

[*] Revised

[1] These data are estimated to give 100 percent coverage of the industry. The proportions of estimate are as follows: Fine paper, 7 percent; coarse paper, 3 percent; sanitary paper, 9 percent; tissue paper, 10 percent; corrugating materials, 3 percent; folding boxboard, 4 percent; cardboard, 4 percent; wet machine board, 9 percent; building paper, 3 percent; building board, 6 percent; and all other grades of paper and paperboard, less than 3 percent. Data for November are preliminary and will be revised in the December report.

[2] Includes flexible fiber insulation.

Pulpwood Receipts at the pulp mills during the month were 1,771,836 cords, almost 4 percent under the October receipts. Month-end stocks totaled 4,874,833 cords, as compared with 4,963,817 cords on hand October 31. Consumption of pulpwood during the month amounted to 1,841,103 cords, as compared with 1,868,504 cords in October.

Receipts of Fibrous Materials other than wood pulp totaled 798,149 tons, as compared with 781,711 tons reported for October. Waste paper receipts at paper and board mills were 615,491 tons, or approximately 6 percent less than those of October.

Wood Pulp Production during the month, at 1,135,732 tons, continued at approximately the October level. In terms of the production base, pulp production ran at 86.2 percent.

Wood Pulp Inventories on November 30 were 371,827 tons at paper and board mills, and 116,332 tons at pulp mills. Stocks were at virtually the same levels as the October end-of-month stocks.

G. S. A. Purchases Paper Items

WASHINGTON, D. C. — Contemplated purchases by the General Services Administration through February 10, to maintain stocks at its various supply depots, will include many paper items.

Among these are: paper bags and sacks, paper drinking cups, packing paper, wrapping paper, paper plates, kraft folders, manila folders, pressboard folders, paper folders, memo pads, mimeograph paper, typewriting paper, columnar pads, desk pads, folder labels, fiber folders, plastic guide cards, etc., totaling $320,500; recent invitations to bid, on materials for the Washington office, included: paper towels, single fold, 150 per package and 25 packages per carton, 9,100 cartons; paper towels in rolls, 150 per roll, 920 cartons; toilet tissue in 1,000 sheet rolls, 4,150 cartons; in 800-sheet packs, 125 packages per carton, 3,405 cartons; on all of which bids will be opened January 31, 1950.

On January 18, the Army announced award of a contract to Warrenburg Pulp & Paper Corp., Warrenburg, N. Y., for 1,351,980 packages of paper towels, single-fold, at $210,755.09.

Holmes Resigns from Smith Paper

LEE, Mass. — Frederick C. Holmes has resigned his position of chief engineer of Smith Paper Inc. He has taken a position as sales engineer with the Bird Machine Co., South Walpole, Mass.

NEW LITERATURE

The Arabol Mfg. Co., 110 East 42nd street, New York 17, N. Y. Folder, "The Facts About Arabol Lagging Adhesive." Names applications, test results, and directions for use with illustrations.

Chain Belt Co., 1600 West Bruce street, Milwaukee 4, Wisc. Bulletin No. 49-30, "Rex Stock Sprockets." Lists dimensions, specifications, prices for complete line of drive and conveyor chains. Gives rules for selection, alignment and care of sprockets.

Denver Equipment Co., Department 1610, Denver 17, Colo. Bulletin No. F10-B46, "Froth Flotation Industrial and Chemical Applications." Mentions examples of separating near-colloidal size particles from a saturated brine; fractionation of fine clays; water purification and correcting stream pollution.

Dilts Machine Works, Fulton, N. Y. Bulletin No. 1-DM, "The Miami Lo-Type Waxer and Water Finish." Numerous drawings and photographs illustrate the construction and operation of the waxing system for both wet and dry wax processing.

The Duriron Co., Inc., Dayton 1, Ohio. New price list H-2, "Duriron Acid Proof Drain Pipe." Illustrates all acid-proof equipment now available for handling corrosive wastes from chemical laboratories, engraving shops, chemical plants, plating rooms, steel mills, etc. Also, Bulletin 1103, "Durco Corrosion Resisting Fans." Shows new drive construction details for larger fan sizes with capacity tables and dimension drawings.

HEADQUARTERS

FOR PAPER TESTING INSTRUMENTS

Fifty-six Instruments, modifications and major accessories for standard testing instruments — many of them adopted by ASTM-TAPPI-JAN-AAR-GIA

Elmendorf Tearing Tester
Basis Weight Scale
Clark Softness-Stiffness Tester
Inkometer

Electro-Hydraulic Tensile Tester
Pendulum Type
Rigid Cross-Head Type
Grips for every purpose.

Pulp Classifier—4 screen
Currier Size Tester
Formation Tester
Vapometers

IPC Electric Hygrometer for MVP
Penescope Penetration Testers
Laboratory Corrugator
pH Meters

McLaurin Gummed Tape Tester
Carson Curl & Size Tester
Dryer Roll Pyrometers
Precision Sample Cutters

THWING-ALBERT INSTRUMENT COMPANY

5366 Pulaski Avenue
Philadelphia 44, USA

401

Elwell-Parker Electric Co., 4532 St. Clair avenue, Cleveland 14, Ohio. Booklet, "Industrial Logistics in Paper." Defined as the science of assembling and handling all pulp and paper loads to insure maximum economies at every stage of (a) procurement, (b) production, and (c) distribution, "Industrial Logistics" is the net of the manufacturer's experience in large-scale operations in the transport of paper.

Ferro Enamel Corp., Dept. 10, 4150 E. 56th street, Cleveland 5, Ohio. Booklet, "Inorganic Colors by Ferro." Sales copy on the ABC's of inorganic colors and the adaptation of Ferro-engineered colorants to paper goods manufacture, plastics, printing inks, etc. Property and recommended color charts are included.

Food and Agriculture Organization of the United Nations, Washington, D. C. Book, "1949 Yearbook of Forest Products Statistics." The third yearbook of forest products statistics to be published by FAO. Prepared by the Division of Forestry and Forest Products as part of its regular statistical services. Contains information for the year 1948, and revised data for 1947, reported by over 100 countries and territories in reply to a standard questionnaire distributed to all governments. The statistical tables are preceded by a summary of conclusions which gives some salient features of the 1948 world situation. It is to be noted that world and regional totals figuring in this summary include estimates for nonreporting countries, whereas the world and regional totals in the statistical tables are comparable totals for 1947 and 1948 for the reporting countries actually listed. Price, $2.50, 195 p.

The B. F. Goodrich Co., Akron, Ohio. Bulletin, 4780, "B. F. Goodrich Industrial Vacuum Hose." Pictures and describes the construction of various lines and types of hose, lists recommended uses and specifications.

Hercules Powder Co., Wilmington, Del. Data Booklet, 32-pages, "Nitrocellulose Packaging and Paper Lacquers." Guide to the skilled lacquer formulator in preparing packaging and paper lacquers for specific purposes. Includes description of formulations and materials used in the research, detailed results of investigations, also charts and graphs that illustrate the text.

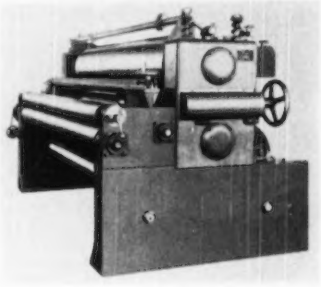
The National Supply Co., Superior Engine Div., Springfield, Ohio. Bulletin No. 4812, "Superior Diesel for Stationary Application." Features 60 years of Superior engine research and production development, and numerous installations of the past three years in municipal, public utility and industrial power plants, office buildings, etc.

Ric-Wil Co., Union Commerce Bldg., Cleveland 14, Ohio. General Catalog Section 480-4, "Ric-Wil Insulated Piping Systems." An authoritative source of information on the proper selection, application, and specification of insulated piping for outside underground or overhead distribution systems. Incorporates all product design changes, improvements and new applications which have been developed during the past forty years' experience in this industry.

NEW EQUIPMENT

Egan Roll Coater

The Egan roll coater is described as a new design of coater which embodies all of the improvements desirable in the vertical type of coater. (1) To provide more access, side frames have been eliminated; the bearing housings that support the roll journals comprise the side frames. (2) The pan can be raised and lowered, permitting the operator to thread a dry web through the machine, and eliminating the passing of the web through a bath of coating or resin. (3) Raising and lowering equipment is of the hydraulic type. The immersion roll—



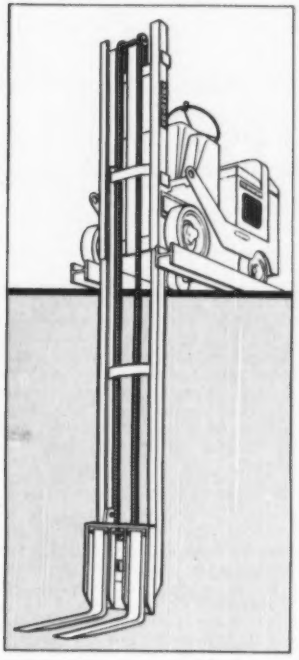
which can be set at any desired level—is raised and lowered by air-operated cylinders. (4) The lower impregnating roll is fixed. Upper roll is set by a fine-screw adjusting unit placed between the bearings, the control mechanism being fully shrouded. (5) A pull roll unit has been provided to permit the handling of a web that has little wet strength. This is driven through a variable speed drive. (6) Main drive for the machine is through an outboard fully-enclosed gear reducer. To provide a smooth drive, herringbone gears are used. Rolls are of chilled iron, ground within tolerances of .0001" to .0002". Frames are weldments.

This type of roll coater is recommended by the manufacturer for treating operations where a web of

paper or cloth is impregnated or coated with phenolic, urea, melamine or silicone resins. Its low-slung design permits a speed range of 10 feet to 1,000 feet per min. Equipment is balanced for the complete speed range so that, if desired, it can be reduced to inches per minute. Can also be used in combination with the horizontal and vertical type air dryers or with cylindrical dryers. For further details and booklet, "Some Fundamentals of Coating Methods," write to Frank W. Egan & Co., Bound Brook, N. J.

Elevator Fork Lift

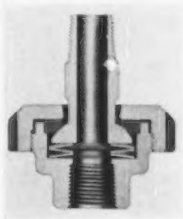
The Elevator fork lift truck is engineered to lower and raise heavy loads between balcony storage areas and first floor production lines. It is believed to be one of the first developments of its kind. A special non-tilt mast and carriage assembly were designed to permit the load-carrying



forks to be lowered 98 ins. below balcony floor level. Mounted on a standard Towmotor fork lift truck, the elevator unit has a lifting and lowering capacity legend of 2,000 lbs. Full capacity loads can be lifted from first floor to 10 ins. above balcony floor level, it is stated. Can be built in various capacities and heights of lift. For details and prices, write to Towmotor Corp., 1226 East 152nd Street, Cleveland 10, Ohio.

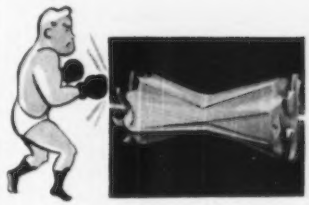
Rotary Swivel Joint

The rotary swivel pipe joint is designed for swivel and slow-revolving applications and to perform without leakage at extreme temperatures. Con-

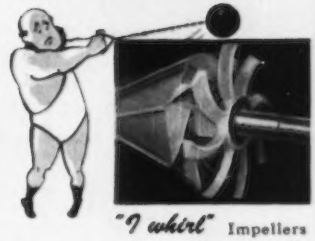


structed so as to eliminate wedge action of the ball against the gasket. The ball is held in place by a Belleville spring. Said to be unique among swivel and revolving joints in that a small amount of side flexibility will reduce the possibility of wear or breakage from side strain. The manufacturer states that successful performance has been obtained at continuous rotation up to 30 r.p.m., and that it will handle practically all fluids and gases including corrosive acids and alkalis. Available in 90° and straight designs in ⅜ ins. to 1 ins. pipe sizes. Extra heavy models are available for extreme pressures and vacuums. For details and prices write to Barco Manufacturing Co., Dept. 99, 1801 West Winnemac Street, Chicago 40, Ill.

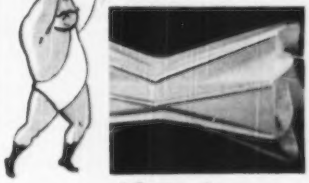
4-way PULPING POWER!



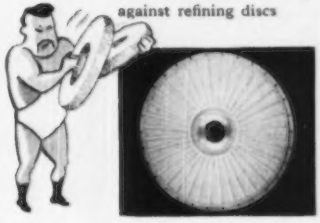
"I pound" Diagonal bars on Pulp-Master Rotor quickly break up fresh charges of stock



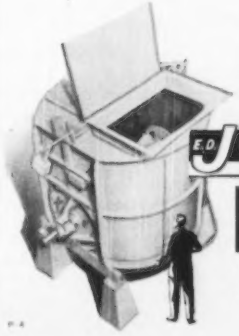
"I whirl" Impellers agitate stock until sufficiently reduced to rub against refining discs



"I slam" Cone shape of Pulp-Master Rotor forces stock violently against sides of tank



"I grind" Refining discs at sides of tank have radial bars against which stock is rubbed by impellers



Not just a swish or swirl, but a pounding, slamming, whirling, rubbing action that completely disintegrates new pulp, waste-paper, machine broke — even glassine and wet-strength — in 10 to 40 minutes.

Four sizes, from 500 to 4000 lbs., at 6½% density. Available for batch or continuous operation. Write for Bulletin EDJ-1019-A — or arrange to see the Pulp-Master in action on your own stock.

E.D. Jones

PULP-MASTER

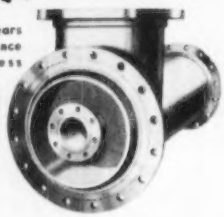
E. D. JONES & SONS COMPANY • PITTSFIELD, MASS.
BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

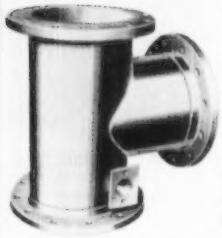
Murco

STAINLESS STEEL FABRICATED BLOW PIPES STOCK LINES & FITTINGS

LASTS A LIFETIME!

Let our years of experience in stainless steel fabrication work for you.

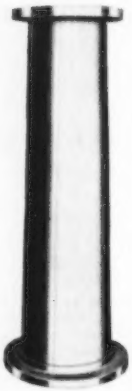




The right type of stainless steels fabricated the MURCA way means substantial savings in stock handling . . . higher cost is offset by extremely long life.

Here are some advantages of Murco Stainless Steel:

- Lower ultimate cost.
- Longer life at lower maintenance.
- Less shut-down time.
- Light, easily installed.
- High impact strength.
- Cleaner stock, no slime.
- Smoother flow, no erosion.
- Uniform wall thickness.
- MURCO engineered economy.



Submit your drawing for estimates, recommendation and complete installation proposals. No obligations entailed.

MURCO

D. J. MURRAY MANUFACTURING CO.

WAUSAU WISCONSIN

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

			1949	1949	1949
	Dec. 18	Dec. 25	Jan. 1	Jan. 8	Jan. 15
1948	*95.1*	*75.8*	*73.0*	*94.1*	*94.7*
				1950	1950
	Dec. 17	Dec. 24	Dec. 31	Jan. 7	Jan. 14
1949	98.4	88.0	72.4	94.3	101.1

COMPARATIVE MONTHLY SUMMARIES

	Jan.	Feb.	Mar.	Apr.	May	June	
1948	*100.1*	*99.8*	*100.8*	*100.8*	*100.5*	*95.7*	
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
	85.5	*96.8*	*91.8*	*99.1*	*97.1*	*87.1*	*96.2*
	Jan.	Feb.	Mar.	Apr.	May	June	
1949	94.6	92.8	89.1	85.1	82.7	78.6	
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
	72.8	‡88.0	‡90.3	‡98.0	‡98.4	‡90.4	‡88.6

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1942	1943	1944	1945	1946	1947	1948	1949
Year Average	90.4	87.8	88.1	89.4	100.1	104.3	96.2	‡88.6

PAPERBOARD OPERATING RATIOS†

			1949	1949	1949
	Dec. 18	Dec. 25	Jan. 1	Jan. 8	Jan. 15
1948	*96*	*87*	*46*	*79*	*93*
				1950	1950
	Dec. 17	Dec. 24	Dec. 31	Jan. 7	Jan. 14
1949	92	92	53	74	94

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1948	*99*	*100*	*102*	*102*	*100*	*94*	*81*	*92*	*91*	*96*	*94*	*84*	*95*
1949	88	85	79	79	78	75	64	86	87	94	93	83	83

* All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

OBITUARIES

Andor de Bodor, 67, owner of the Associated Engineering Co., Newark, N. J., died January 12 in Montclair Community Hospital. Mr. De Bodor specialized in tool and machine design. He was a pioneer in the designing of paper milk containers and is also credited with designing the first machine to manufacture paper pie plates capable of withstanding high temperatures in commercial bakeries. Surviving are his widow and two daughters.

Lewis (Louie) Dozier, 61, widely known in the paper mill industries of the United States and Canada, died on January 16 after suffering a heart attack early in the evening. He had been general paper mill superintendent for the Rhinelander Paper Co. since 1928.

Mr. Dozier's first paper mill position was with the Riegel Paper Co. in Brooklyn in 1904. When leaving that firm, twelve years later, he was in charge of the company's paper machines. In 1916 he joined Folke Becker in the Westfield River Paper Co. in Massachusetts during its construction period and served there as paper mill superintendent for another twelve-year period. In 1928 he came to Rhinelander with Mr. Becker as paper mill superintendent and for the past several years has been occupied in the capacity of general paper mill superintendent. "Louie" was a great sport's fan and gave his leisure time to promotion of sports and boys' activities.

He is survived by his widow, Margaret Sine Dozier, and a son, Richard, assistant superintendent of the specialty department of the Sutherland Paper Co., Kalamazoo, Mich.; one daughter, Mrs. John (Audrey) Sterling of Rhinelander; and a brother, Charles, paper mill foreman, at Russell, Mass.

C. Edward Lehmkuhl, 43, an executive of the Hercules Powder Co., died January 13 in Linton, Ind. He had served as superintendent of the Hercules plant at Jasonville, Ind., from 1946 until last summer when, because of illness, he took an extended leave of absence. He is survived by his widow; a son, Lee Edward; a brother, Jack R. Lehmkuhl; and his parents.

Henry J. Hazell, 71, a former engineer of the Kalamazoo Vegetable Parchment Co., died January 10 after an illness of 17 months. Mr. Hazell retired from the company two years ago, having completed 25 years of service.

Edward H. Bell, 61, vice-president of the American Can Co. in charge of West Coast, Alaskan, Hawaiian and British Columbia operations, died January 12 after a brief illness.

John C. Schoeneck, department manager of the J. & F. B. Garrett Paper Co., died January 14 at Syracuse, N.Y. He had been associated with the Garrett Co. for 58 years.

NELIO

is free from the defects of ordinary gum rosin!

NELIO Gum Rosin offers distinct advantages for the manufacture of size. It is made by scientific methods, under strict laboratory control.

NELIO offers economies. In addition to its exceptional uniformity and dependability, NELIO is less expensive to handle and use.

UNIFORM
The standard grades are unvarying in color and quality. Shipment after shipment will be identical.

BRILLIANT
Assuring consistently lighter grades of paper.

DRY
No need to worry about the turpentine content of NELIO —it's very low!

CLEAN
Not a trace of dirt or foreign matter because of careful processing in stainless steel equipment.

FULL-WEIGHT
Shipped in standard, non-absorbent leak-proof metal drums, in 100 lb. net weight paper bags or in fluid state in insulated tank cars.

IF YOU NEED TECHNICAL SERVICE—We offer you a consulting service with experienced paper technicians on request.

Write for Samples and Prices

NELIO is manufactured by THE GLIDDEN COMPANY, NAVAL STORES DIVISION and sold by

E. W. COLLEDGE

General Sales Agent, Inc.
JACKSONVILLE 1, FLORIDA

NEW YORK 17 — 52 Vanderbilt Ave.
CHICAGO 4 — 25 E. Jackson Blvd.
CLEVELAND 14 — 807 National City Bank Bldg.
SAN FRANCISCO 5 — 503 Market St.

BOARD MILL SCREENS

Probably more Board Mill Screens are equipped with **Fitchburg NEW TYPE-DUPLEX SLOT Screen Plates** than any other type of plate.

High capacity . . . permanent true slot alignment . . . Freedom from "strings" and plugged-up slots.

Get a full day's work from your screens with these remarkable plates. Furnished in tough, "Fitchburg Bronze," plain or chromium plated.

FITCHBURG
Screen Plate Co., Inc.
301 South Street
Fitchburg
Massachusetts

Cowles

NU-NAP

FELT WASHING DETERGENT

Cowles NU-NAP contains a new combination of products and a brand new idea in detergent action. NU-NAP does an outstanding washing job on paper machine felts—both on and off the machine NU-NAP will give extra life to your felts—it leaves them unusually clean—fluffy and absorbent.

Use NU-NAP for dependable—safe—free rinsing felt washing.

WRITE FOR COMPLETE INFORMATION AND PRICES
•
IMMEDIATE DELIVERIES

COWLES CHEMICAL COMPANY

PAPER CHEMICAL DIVISION
7016 EUCLID AVE. CLEVELAND 3, OHIO

The Hinde & Dauch CRUSH TESTER

TO CONTROL QUALITY OF PRODUCT—A practical, heavy duty instrument for ring stiffness tests of liner-board and box-boards and flat crush tests of combined corrugated board. Measurements uniformly accurate. Recording mechanism independent of machine elements, eliminating friction; plunger and plate free of lateral movement.

SCHOPPER TYPE TENSILE TESTER • BASIS WEIGHT SCALES
MICROMETERS • OTHER TESTING INSTRUMENTS
STRIP CUTTERS FOR UNCOMBINED BOARD TESTS

TESTING MACHINES INC.
427 WEST 42ND STREET, NEW YORK 18

INTERNATIONAL INDUSTRY YEARBOOK—1948

The Authoritative Digest of The Most Important Recent Technical Developments in 32 Fields of Industry.

—more complete than news articles, more up-to-date than textbooks, the International Industry Yearbook is an indispensable quick reference summary of developments in major industrial fields, widely separated in application but of close mutual interest in many of their technical problems.

WHAT IS BEING DONE IN OTHER INDUSTRIES MAY BE VITALLY IMPORTANT TO YOU!

Over 600 illustrations and line drawings 32 authoritative contributors 416 pages 3300 references 8½" x 11" Cloth Binding.

KRISTEN-BROWNE Publishing Company
Dept. PT 561 Fifth Avenue **New York 17, N. Y.**

Kindly fill my order for a copy of the 1949 Edition, International Industry Yearbook at $10 postpaid. I understand that I will be billed later and I may return my copy within 10 days with no obligation.

Print Name .....

Address .....

.....

WEST VIRGINIA PULP and PAPER COMPANY

230 Park Ave.
New York 17, N. Y.

35 East Wacker Drive
Chicago 1, Ill.

Public Ledger Building
Philadelphia 6, Pa.

503 Market St.
San Francisco 5, Calif.

Manufacturers of West Virginia Mill Brand Papers

SUPERCALENDERED	ENVELOPE
ENGLISH FINISH	MIMEOGRAPH
LITHOGRAPH	INDEX BRISTOL
LABEL	POST CARD
OFFSET	COVER
EGGSHELL	CUP AND CONTAINER
MUSIC	FILE FOLDER
POSTER	TAG
BOND	COATED
WRITING	MACHINE COATED

KRAFT CONVERTING AND KRAFT ENVELOPE
KRAFT LINER BOARD

MILLS

Mechanicville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Charleston, South Carolina

"EXCELSIOR" FELTS

The Trademark of Felts of Superior Quality for Every Grade of Pulp and Paper

KNOX WOOLEN COMPANY
CAMDEN, MAINE

CLEARING HOUSE

HELP WANTED

HELP WANTED

WANTED
PAPER MILL
SUPERINTENDENT

A six-machine division of a large Canadian paper company, located in a city, making bonds, ledgers, sulphite specialties, and light weight tissues. Man required must have managerial ability, in addition to practical experience in both paper machine operation and stock preparation. This position carries an attractive salary and is an exceptional opportunity for the right man. Give complete information concerning experience and education in your first reply. Reply Box 50-49, c/o Paper Trade Journal,

F-23

HELP WANTED

MEN WANTED
Positions Open

We can place general managers, general superintendents, also superintendents and assistant superintendents for paper mills and board mills.

Chemists and chemical engineers, $4,000-$6,000—1 chemist for technical service and development work with chemical company; A-#1 color man capable taking full charge of beaters and color matching.

Master mechanics, mechanical engineers, plant engineers and chief draftsman, salaries up to $9,000; Cylinder and Fourdrinier machine foremen.

Salesman for Illinois territory, waxed papers and cellophane products; machine tenders, back tenders and beater engineers.

We invite correspondence (confidential) with executives seeking positions and with employers seeking new personnel.

CHARLES P. RAYMOND SERVICE, Inc.
291 Washington Street, Boston, Mass. J-26

WANTED

MACHINE TENDERS
BACK TENDERS
BEATER ENGINEER
TOUR BOSS

Thoroughly experienced in manufacturing of quality folding box board.

Steady job, one machine mill, located Northern New Jersey.

In reply, state age, experience and full details.

Address Box 50-33, Paper Trade Journal. J-26

WANTED
Bag Machine Mechanic

An old established specialty paper-converter needs a master adjuster familiar with Potdevins, Webers, Matadors, Baggrint and other auxiliary equipment. If you have the ability to set up and adjust this type of machinery and teach others already on the job, a splendid opportunity awaits you. Please state age, family status, salary required, previous employers, etc., in your first letter and an interview will be arranged at our expense. Address Box 50-53 care Paper Trade Journal. J-26

EXPERIENCED PAPER SALESMAN WANTED — Specialty paper manufacturer with well rounded line of products has an opening in Mid-Western territory. Good opportunity for experienced salesman. Applicants must furnish references and qualification. Address Box 50-22 care Paper Trade Journal. J-26

PROGRESSIVE PENNSYLVANIA TISSUE MILL has opening for qualified man to assist Superintendent. Start as night superintendent and progress to assistant day superintendent as ability is proven. State age, experience, education and salary desired. Address Box 50-51 care Paper Trade Journal. J-26

SALARIED POSITIONS $3,500—$25,000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (40 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
117 Dun Bldg., Buffalo 2, N. Y.

TF

Graduate Physicist

with one or two years industrial experience, preferably with some training in chemistry, is required for development work involving the fields of mechanical properties of matter, heat and moisture transfer, optical properties of films, and sound absorption as applied to wood fiber products. Location: Upper Midwest. Address Box 49-37 care Paper Trade Journal. J-26

WANTED

MANAGER for a new laminating division of a large Mid-Western board mill. Must have knowledge of converting operations, sales experience and executive ability. Address Box 50-59, care Paper Trade Journal. F-16

Paper Mill Superintendent Wanted

for one machine paper board mill located in Northern New Jersey area. Manufacturing white patent coated, bleached manila, and other quality folding box board grades.

Good opportunity for proper man. Reply Box #50-37 care Paper Trade Journal. J-26

ADJUSTER
Experienced Paper Bag Machines
New York City Plant
Ideal conditions. State details

Box #50-46, care Paper Trade Journal. J-26

SITUATIONS WANTED

Production Manager or Technical Executive—18 years background in research, practical manufacturing of boards, tissues, bond, book, glassine, corrugated, coated, waxed and other paper specialties. Complete know how where profit, output and quality counts. Commercial and cost-minded technician. Excellent labor relation history and references, 40 years old, speaks also Spanish. Address Box 50-52 care Paper Trade Journal. J-26

PLANT MANAGER—Board and Paper Conversion; employed; seeks opportunity in company needing cost-minded executive with proven production record and excellent labor relations history. Address Box 50-8 care Paper Trade Journal. J-26

SALESMAN, university education, broad background in paper industry, seeking connection with Chicago headquarters. Fully capable. Gentile. Address Box 50-19 care Paper Trade Journal. J-26

MECHANICAL ENGINEER with record of substantial savings in printing, paper converting and film converting operations, desires change. Will locate anywhere in United States. Address Box 50-45 care Paper Trade Journal. F-9

RATES FOR CLASSIFIED ADVERTISING

HELP WANTED—10c a word. Double rate for heavy face type. Minimum charge $2.50.

SITUATIONS WANTED—10c a word, double rate for heavy face type. Minimum charge $2.50. If repeated ½ rate will be charged for each consecutive repetition.

FOR SALE—10c a word. Double rate for heavy face type. Minimum charge $2.50.

WANTED—10c a word. Double rate for heavy face type. Minimum charge $2.50.

OPPORTUNITIES—10c a word Double rate for heavy face type. Minimum charge $2.50.

Classified advertising space may also be purchased at $5.00 per single column inch. All classified advertisements are payable in advance. If box number is used—70 cents additional.

Address replies to advertisements appearing under Box Numbers to care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 18, N. Y.

SITUATIONS WANTED

CHIEF OR PLANT ENGINEER with 20 years experience in Supervision, Production, Research, Maintenance, Construction, Power Plants and Development and methods of manufacture. Capable of taking charge of all plant engineering and maintenance. Registered professional engineer with B.M.E. Degree. Desires change. Address Box 50-36 care Paper Trade Journal. J-26

GENERAL SUPERINTENDENT — 30 YEARS PRACTICAL AND TECHNICAL EXPERIENCE—Cylinder and Fourdrinier Machines, all kinds of high grade folding Box Board and Kraft Specialty Board, Sulphate, Sulphite, groundwood, de-inked papers. Good organizer, can teach help, excellent labor relations, cost and quality conscious. Best of references. Address Box 50-38 care Paper Trade Journal. F-16

FOR SALE

FOR SALE

106" Beloit 3 sets press roll stations: 106"—2 bar slitter: 7 pairs mill stands with controls for 72" diam. rolls with 78" & 106" shafts: 74" Knowlton cut-off knife; 49" x 66" and 46" x 62" Miehle printers and die cutters; 26" x 38" and 28" x 41" Thomson platen die cutters; 72" Cottrell die cutter. Write for listings on over 90 paper converting and paper boxmaking machines available. Address Box 50-40, care Paper Trade Journal. TF

FOR SALE — Rubber Mat Moulding Press — hydraulic precision type, mfg. by Stereotype Equip. Co. 21¾ x 15¾ on 10" ram with slide extension, electrically heated platens, complete with pump, switch, control panel, enclosed steel cabinet. Address Box 50-48 care Paper Trade Journal. J-26

FOR SALE

CURRENT OFFERINGS

58" Finley Single Knife Sheeter.
82" Hamblet Sheeter with Layboy.
No. 9 Cameron Slitter.
3-color Rotary Web Press, 60" cyl.
55" 9-roll Super Calendering Machine.
Model 145 Economy heavy duty Baler.
32", 38", 40" and 44" Power Cutters.
NEW Back-Stands, made to special order.
Motors—from fractional to 30 H.P.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 18.
(Plant at Stamford, Conn.)
TF

FOR SALE

1—Plain Extractor Roll 28" diameter x 150" face.
1—112" Cameron Type 18.

BARKERS
1—5' Carthage Disc Barker

BEATERS
1—800 lb. Beater—iron tub

BEATER (Laboratory)
1—Dilts Iron Tub Laboratory Beater. Beater roll 14" diameter x 10½" face, including motor.

BRASS FELT ROLLS
9—4" diameter x 140" face (with bearings)

BREAST ROLLS
1—120" x 14"
1—100" x 14".
1—114" x 14"

CALENDER STACKS
1—72" 5 roll Calendar Stack.
1—76" 7 roll calender stack (heavy duty).
1—2 roll pressure calender—32" x 108".
1—2 roll Calender Stack—16" diameter x 80" face.

CHIPPERS
2—96" Murray 4 knife Chippers.

CORE CUTTERS
1—Core Cutter.

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
1—Jeffrey Hammermill.

CYLINDER MOULDS
1—36" diameter x 80" face.
1—38" diameter x 72" face.
1—36" diameter x 79" face.

DECKERS
1—Decker—48" diameter x 84" cylinder mold
3—Pusey & Jones Deckers Cylinder molds 42 x 146, anti friction bearings, including rubber covered couch rolls.
3—IMPCO 75½" face x 30" diameter cylinder mold.

DRIVES
2—#4 Reeves Drives.
1—#2 Reeves Drive.
1—Smith & Winchester mortise gear Drive.
1—Foote—7½ h.p. Speed Reducer (Ratio 240 to 1)
2—Smith & Winchester Mortise Gear Drives with 26" diameter clutches—Ratio 8 to 1.
6—Enclosed drives. 75 h.p., ratio 8 to 1. Complete.
1—#5 Reeves drive.

DRIVES (Angle)
1—General Machine Company 16 : 1.
1—Philadelphia 50:1 — 1 h.p. — 1200 r.p.m.
1—Philadelphia 21¼:1 — 3 h.p. — 1200 r.p.m.

V-BELT DRIVE
1—21½" diameter x 7¼" face, 5 groove.
1—16½" diameter x 7¼" face, 5 groove. (With clutch).

DRYERS
20—36" diameter x 102" face.
7—24" diameter x 48" face.
9—36" diameter x 72½" face, with gears and bearings.
1—48" diameter x 91" face.
2—25" x 120" (Baby Dryers).
2—36" x 143".
1—24" x 130".
1—60" diameter x 47" face.
3—36" diameter x 96½" face.
1—48" diameter x 70" face.
2—48" diameter x 92" face.
1—48" diameter x 82" face.
2—36" diameter x 76" face.

EMBOSSER
1—84" Hudson Sharp Toilet Embosser. Spare engraved roll.

FELT ROLLS
20 Felt Rolls—Brass covered 8" to 12" diameter.

FLAT SCREENS
1—6 plate Shartle Flat Screen.
2—12 Plate Murray Dunbar Flat Screens.
6—12 plate IMPCO Flat Screens with Dunbar Drives.

FRAMES
Vertical frames for 85 42" dia. dryers—with bearings.

FRICTION CALENDERS
2—30" Waldron.
2—38" Waldron.

HYDRAULIC PRESS
1—Watson-Stillman Co. (Platen 24" x 24").

JORDANS
2—Noble and Wood—Mammoth Type.
1—Emerson Jordan—25 to 30 tons capacity —iron plug including new spare iron plug.

MISCELLANEOUS
1—Caustic Mixer.

MOTORS
2—5 h.p. ball bearing—splash proof motors —3/60/440, 1160 r.p.m.
1—½ h.p. ball bearing—splash proof gearhead motor—3/60/440, 1725 r.p.m.
1—2 h.p. ball bearing—splash proof gearhead motor—3/60/440, 1725 r.p.m.

PRESSES
4 Sections of presses approximately 24" diameter. Rubber and Bronze.

PRESS ROLLS
Various sizes.

PRINTING MACHINE
1—3 color 40" Rotary Cottrell Printing Machine, A-1 condition, provision for 2 more colors.

PULLEYS
Various cone and assorted pulleys.

PULPERS
1—Jones Pulper. Complete with motor and drive.
1—Noble & Wood Pulper—Iron Tub.

PUMPS
2—Weil Pump Co.—100 g.p.m.—100 P.S.I. including 15 h.p. motors (new equipment).
1—Bell & Gossett—300 g.p.m.—120' head—including 15 h.p. motor.
1—Goulds Sump Pump—50 g.p.m.—20' head —including motor.
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

REEL
1—72" Beloit Reel.

ROLLS
800—Brass tube-steel tube—rubber covered iron rolls—various sizes.

ROTARY SCREENS
1—#2 Bird Rotary Screen.
1—#2A Bird Rotary Screen.

SAVEALLS
1—Saveall—48" diameter x 84" cylinder mold.
3—Pusey & Jones Savealls. Cylinder molds 42 x 146, anti friction bearings, including rubber covered couch rolls.

SCREEN PLATES
20 Plates cut .016.
10 Plates cut .008.
Also other sizes and cuts in stock.

SHEETERS
1—136" Moore & White Sheeter, duplex, with layboy
2—36" Sheeters.
2—46" Sheeters.
2—50" Sheeters.

SLITTERS AND WINDERS
1—72" Cameron—Type 10-5.
1—72" Cameron—Type 10-11.
1—62" Cameron—Type 6.
1—50" Cameron—Type 24-2L.
1—42" Cameron—Type 40-4-B.
1—42" Cameron—Type 24-2-A.
1—42" Cameron—Type 9-5.
1—42" Cameron Constant Tension, with pneumatic control.
1—115" 2 drum Waldron.

SQUEEZE ROLL
1—Rubber Squeeze Rolls, 20¾" diameter x 102" face.

STOCK PUMPS
1—10 x 20 Shartle Duplex.
2—7 x 16 Shartle Duplex.
3—7 x 16 Shartle Triplex.
Numerous other Centrifugal Stock Pumps Advise as to your requirements.

SUCTION BOXES
5—Suction Boxes, 82" drilled face x 6" wide.

SUCTION COUCH ROLL
1—24¾" diameter x 160" drilled face.
1—Sandusky 14⅝" diameter x 103" drilled face.

SUCTION PRESS ROLL SHELL (Only)
1—29¾" diameter x 134" drilled face.

SUPERCALENDER STACK
1—54" 9 roll supercalender stack, completely rebuilt including motors, etc.

TABLE ROLLS
40—Table Rolls 82" face x 3" diameter.

TOILET and TOWEL MACHINES
2—Dietz 81" Toilet & Towel Machines.

TRIMMER
1—56" Smith & Winchester—Undercut.

TUNNEL DRYERS
2—Proctor & Schwartz Tunnel Dryers, 10 ton and 5 ton capacity.

TURBINE
1—150 h.p. Westinghouse Type C-Gear Turbine (Recently rebuilt).

VAT
1—Iron end Vat only, for decker or saveall, suitable for cylinder mold 36 x 130.

YANKEE DRYERS
1—8' diameter x 175" face.
3—Yankee Dryers 84" diameter x 52, 53 and 62" face.

WAXING MACHINE
1—72" Mayer Waxer.

We are always in the market to purchase your surplus or idle machinery. What have you to offer?
Wanted Cylinder and Fourdrinier Machines (complete mills).

Paddy Ross, Pres. **J. J. ROSS COMPANY** Ben Kurs, Treas.
250 Frelinghuysen Ave. Tel.—Bigelow 3-3720 Newark 5, N. J.

TELEPHONE HUMBOLDT 2-2177

CABLE ADDRESS: JACROSS

ROSS PAPER MACHINERY CO.

265 PASSAIC STREET
NEWARK 4, N. J.

CONVERTING PAPER MAKING EQUIPMENT

NEW, USED, REBUILT PAPER AND PULP MACHINERY

AMERICA'S LARGEST BUYERS OF PAPER MAKING MACHINERY

ANILINE PRESS
1—Lockport 4 color Aniline Press.

BEATERS
2—Valley Iron 750 lb. Iron Tub—Bronze filled.

BLOWERS
8—Blowers and Mill Exhausters

CALENDER ROLLS
46 Chilled Iron Rolls—Assorted sizes.

CALENDER STACKS
1—76" face 7 roll with drive.
1—76" face 3 roll with drive.
1—112" face 7 roll.
1—82" face 5 roll Sandy Hill.

CONVEYOR
1—18½ ft long x 30" wide—with motor.

CYLINDER MOLDS
4—IMPCO 40" diameter x 84" face.
1—36" diameter x 136" face Cylinder molds with vats, couches—ball bearing.
2—74" face x 36" diameter.
1—134" face x 36" diameter, with stainless steel shafts.
1—78" face x 30" diameter.

DRIVES
1—4C. Reeves Drive. 40-50 h.p.—Ratio 4 to 1.
1—Falk 60 h.p. Ratio 13 to 1. R.p.m. 1470-113. Herringbone gears.

DRYERS
1—74" face x 28" diameter with gears.
5—143" face x 48" diameter.
4—124" face x 48" diameter.
5—80" face x 36" diameter.
1—77" face x 48" diameter—with gear.
1—64" face x 30" diameter.
10—78" face x 36" diameter, complete with 2 deck frames, gears, bearings and steam joints. Drives, line shaft and felt rolls are available.
1—78" face x 18" diameter with gears and bearings.
1—120" face x 16" diameter—Baby Dryer.
6—96" face x 48" diameter.
95—126" face x 42" diameter.
3—96" face x 36" diameter.
3—86" face x 36" diameter.
3—70" face x 36" diameter.

ELECTRIC PAPER MACHINE DRIVES
1—G. E. 55/110 with G. E. Generator, Exciter and Controller.
1—G. E. 80/100 with G. E. Generator, Exciter and Controller.

EXTRACTOR ROLLS—SUCTION
1—Downingtown—64" face x 17" diameter with bearings & stand.

FLAT SCREENS
1—Montague 6 plate—ball bearing.
1—Sandy Hill 6 plate.

FOURDRINIER SECTIONS
1—P & J 156" x 80 ft. ball bearing. Complete from inlet to 22" diameter suction couch. Brass and Rubber covered table rolls. 6 Brass Suction Boxes operated at 1000' per minute.
1—M & W 82" x 40' complete with 3 suction boxes, shake, 3 section presses and size press.

HEAD BOXES
—118" Bronze Lead Lined. Beloit.

INLETS
1—Voith Inlet for 151" wire with 28" slice. Complete, including drive.
1—90" All bronze—adjustable.
1—141" Beloit complete with distributor roll.

JORDANS
2—Jones Standard.
1—#3 Miami, for motor drive.
1—Jones Majestic, roller bearing—stainless steel filling—for motor drive.
4—Jones Majestics with base and couplings—bronze filled, 2 sets of new bronze fillings.
2—#3 Appleton with base and coupling—bronze filled.
1—Dillon Horse #2—direct connected 75 h.p. Stainless steel ¼" filling.
1—#2 Smith & Winchester—Ball bearing.

LABORATORY EQUIPMENT
1—Cavagnaro 2 roll 12" calender. Steam fitted rolls.
1—16" Coating Machine.
1—Noble and Wood 4 lb. Beater.

MOTORS
1—Fairbanks Morse—50 h.p. — 485 r.p.m. — 220/440/3 ph.—60 cycle.
1—Reliance 25 h.p. ball bearing, 550 v., 3 phase, 60 cycle—1750 r.p.m.

PULLEYS
30—Split cast iron tapered Pulleys.

PULP EQUIPMENT
1—Jigger—1 deck—vibrating screen.
1—Mills & Merrill 217 Pulpwood chipper
1—9" Carthage Disc Barker
1—96" Murray 4 knife ball bearing Chipper, with 150 hp synchroneous motor.

PULPERS
2—#2 Lannoye Pulpers—with drives.

PUMPS
44—Centrifugal Pumps, open & closed Impellers. Direct connected or Belt Driven. Extended base for motor. Assorted capacities and heads. Most used less than one year. Also new Goulds Pumps.

REELS
2—Beloit 110" two bowl Reel.
1—Beloit 132" two bowl upright reel.
1—Beloit 116" two bowl upright reel.

ROLLS—PRESS, COUCH, etc.
32—Press rolls, brass and rubber covered.
14—Couch rolls, brass and rubber covered.
250—Brass and steel carrying rolls.

ROTARY SCREENS
2—Jones Lathwalk—cylinder 84" face x 30" diameter.
1—#2 Leith-walk-ball bearing.

SCREW PRESSES
2—Valley Voith Screw Presses Size 2A, with new spare sets of plates.

1—P&J 120" Ball Bearing Fourdrinier Machine. 50" dryers—suction press and suction couch—Spiral Bevel Gear Drives.

1—Pusey & Jones 82" Fourdrinier Machine Complete.

SHEETERS
1—Beloit Duplex 104", complete with drive.
1—Hamblet Duplex—136".
1—Hamblet 12 roll heavy duty doubledeck backstand.
2—Moore & White 100" single knife with layboys and 6 roll backstand.
2—Moore & White 62" single knife with layboys and 6 roll backstand.
2—Moore & White 48" single knife with layboys and 6 roll backstand.
3—Hamblet 62" single knife with 8 roll backstand.

SHREDDERS
1—American 32" Hammermill, anti-friction bearing.
2—Sprout Waldron Cutters—type F-11—30" Rahvoo. Used 30 days.

SLITTERS AND WINDERS
2—Pusey & Jones 160" high speed slitters and rewinders.
1—Beloit 2 drum 125" with 8 slitters.
1—Langston 84". Rewinds 52" roll.
1—Langston 120". Rewinds 58" roll.
1—Langston 148". Rewinds 66" roll.
1—Cameron 42"—#6—with motor and controls.
1—Cameron 42"—#24—with motor and controls.

STUFF PUMPS
1—Shartle 8½x12 Triplex—Silent Chain Drive.

SUCTION COUCH ROLLS
1—Millspaugh 22" diameter x 136¾" suction face.
1—Millspaugh 22" diameter x 158" drilled face.
1—Beloit 107" drilled face x 22" diameter. Anti friction bearings.
1—Millspaugh—141½" diameter x 83" drilled face.

SUCTION PRESS ROLLS
1—Downingtown 25" diameter x 180" drilled face.
1—Beloit 22" diameter x 105" drilled face for direct drive. Anti friction bearings.

SUPER CALENDERS
1—7 roll 62" face.
1—7 roll 56" face.
1—Norwood 74" 7 roll with motor and controls.
1—Norwood 72" 7 roll.

THICKENERS
1—72" Thickener—all iron vat.
1—88" Thickener—new wood vat.

TRIMMERS
1—Seybold 74" with five knives.

VACUUM PUMPS
1—#2 Nash for motor drive.
1—L-5 Nash Vacuum Pump. Rebuilt by Nash. 8 months old.
1—L-6 Nash Vacuum Pump. All bronze.

WET MACHINES
1—84" Wet Machine with new felts, ball bearing mold and couch.

REAL BUY
TWO LEWIS-SHEPARD STACKERS

1—Stacker capacity 2000# lift 11 Ft. Type PB Winch HP 2 Motor 2 HP 3 Phase 440 Volts 60 cycle—Platform 21 x 42

1—Stacker capacity 1500# lift 12 Ft. Type PC Motor 3 HP 3 Phase 60 cycle 440 volts—Platform 36 x 36

MORAINE PAPER DIVISION
WEST CARROLLTON, OHIO

J-26

FOR SALE—BAG MACHINES—self opening type. Good condition. Address Box 50-42 care Paper Trade Journal. F-9

PAPER MILL FOR SALE

Located on Hudson River in New York State. Cylinder machine with Toilet Tissue Converting plant, water power and steam plant. Good operating condition. Replies to Box 50-24, c/o Paper Trade Journal. J-26

PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon, Laboratory Coating and Treating Machines. New improvement. MAYER MACHINE COMPANY, Inc., 1213 Buffalo Road, Rochester 11, N. Y. TF

FOR SALE—Two each Moore & White Cutters, including back rolls and lay boy—48", 62" and 106". One each Smith & Winchester Undercut Trimmers—56" and 92". One 44" 9 roll Holyoke Calender Stack and one 56" Eck & Suchne Calender Stack. Address Box 50-29 care Paper Trade Journal. F-9

FOR SALE—BAG MACHINES. Lockports square and flat type. Good condition. Address Box 50-43 care Paper Trade Journal. F-9

FOR SALE—48" Kidder and 32" Cameron Model 24-3A Slitters, both complete with A.C. motors. Address Box 50-44 care Paper Trade Journal. F-2

WANTED

WANTED

Heavy duty, double cut-off mill sheeter sixty inch face. Address Box 50-14, care Paper Trade Journal. J-26

WANTED

Complete small single cylinder paper machine. Address Box 50-7, care Paper Trade Journal. J-26

WANTED — Brightwood Box Machine. Address Box 50-17 care Paper Trade Journal.

PAPER MANUFACTURER desire to purchase or invest in converting business of standard paper products. Address Box 50-16 care Paper Trade Journal. TF

WANTED

WANTED—
LAMINATING
EQUIPMENT

Have immediate need for one, two or three laminators.

Frames and rolls wide enough to pass 36" or 46" web widths.

Prefer high class stainless equipment arranged for heated pans and rolls, of roll coater with doctor roll type, but can rebuild any suitable type to fit requirements.

Advise make, specifications, price, and where may be inspected.

Address Box No. 50-55, care Paper Trade Journal. J-26

WANTED

(1) 80" Slitter & Rewinder, 40" dia. rolls, any condition.

(1) 62" Langston Shear Cut.

(1) 42" Type 24 or 26 Cameron Duplex.

Address Box 50-47 care Paper Trade Journal. J-26

WANTED—52 inch Slitter. State make, condition and age. Address Box 50-58 care Paper Trade Journal. J-26

WANTED

WANTED—One 40" to 50" trim Hamblet Rotary Cutter with Slitter attachment. Advise lowest price and send photo picture. Address Box 50-56 care Paper Trade Journal. J-26

WANTED—42" Sheeter with layboy, 5 to 10 roll backstand, 42" and 62" Cameron Slitter, Type 6. Address Box 50-41 care Paper Trade Journal. F-2

WANTED—Waxing Machine 72" or wider; toilet paper perforator; also any paper mill dryers. Address Box 50-39 care Paper Trade Journal. J-26

WANTED—W & P Shredders, Evaporators Generators and Boilers, Slitters, Cutters, Hydraulic presses, Sheridan Presses, Dryers. Address Box 50-18 care Paper Trade Journal. TF

WANTED—48" diameter cast iron dryers 128" to 134" face. Address Box 50-34 care Paper Trade Journal. F-2

SALES REPRESENTATION

Successful
MANUFACTURER'S AGENT

Southwestern Ohio (Miami Valley) can handle one more line—with some active accounts or good prospects—among paper, pulp, roofing mills and/or industrial plants. Excellent contacts. Proved sales ability. References. Write: Box 50-50 care Paper Trade Journal. J-26

BUSINESS OPPORTUNITY

Do you want to
RETIRE—
EXPAND—
SELL—
Your Business?

We are interested buying or joining going concern, experience fine and coarse paper, board, cellophane. Jobbing and converting. Ready means. Replies kept in strict confidence. Address Box 50-54 care Paper Trade Journal. J-26

BUY UNITED STATES
SAVINGS BONDS

PAPER TRADE JOURNAL CLASSIFIED ADS
BRING GOOD RESULTS

MISCO
STAINLESS STEEL CASTINGS
for all equipment exposed to corrosion by sulphite acids or other corrosive agents
MICHIGAN STEEL CASTING CO., DETROIT 7, MICH.

THE CONVENTION NUMBER
of
PAPER TRADE JOURNAL
will be
FEBRUARY 23, 1950

PARAFFIN & MICROCRYSTALLINE WAXES

CARLOADS — TANK CARS — TRUCKS

NATIONAL WAX CO.

NATIONAL WAX COMPANY
1300 WEST DIVISION STREET
CHICAGO 22, ILLINOIS

NATIONAL WAX CO.

WHERE TO BUY

ABRASIVES
Monsanto Chemical Co.
Nopco Chemical Co.
Norton Co.

ADHESIVES
American Anode Incorporated
American Paper Machy. & Engrg. Works, Inc.
E. I. Du Pont De Nemours & Co., Inc.
The Goodyear Tire & Rubber Company
Monsanto Chemical Co.
National Starch Products, Inc.
Nopco Chemical Co.

AGITATORS
Appleton Machine Co.
Dilts Machine Works, Inc.
Dorr Company
Downingtown Mfg. Co.
Hardinge Company, Inc.
E. D. Jones & Sons Co.
D. J. Murray Mfg. Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

ALLOYS
Michigan Steel Casting Co.

APRON CLOTH
Williams-Gray Co.

BAG MACHINES
Potdevin Machine Co.
Smith Winchester Mfg. Co.
Weber, Herman G., & Co., Inc

BARKERS AND CHIPPERS
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Carthage Machine Co.
D. J. Murray Mfg. Co.
Valley Iron Works Co.

BARS
E. D. Jones & Sons Co.
The Moore & White Co.
Shartle Brothers Machine Co.
Stephens-Adamson Mfg. Co.
Valley Iron Works Co.

BASIC WEIGHT SCALES
Thwing-Albert Instrument Co.

BEARINGS
E. D. Jones & Sons Co.
Link Belt Company
Magnus Metal Corp.
The Moore & White Co.
Shartle Brothers Machine Co.
Timken Roller Bearing Co.
Valley Iron Works Co.

BEATERS AND JORDANS
American Paper Machy. & Engrg. Works, Inc.
The Appleton Machine Co.
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Morden Machines Co.
J. J. Ross Company
Ross Paper Machy. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

BED PLATES
Bahr Brothers Mfg. Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Lukenweld, Div., Lukens Steel Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BELTING
Alexander Brothers
Allis-Chalmers Mfg. Co.
The Cincinnati Rubber Mfg. Co.
The Goodyear Tire & Rubber Company
Link Belt Company
J. E. Rhoads & Sons

BLEACHING AGENTS
E. I. Du Pont De Nemours & Co., Inc.
General Dyestuff Corp.
Rohm & Haas Co.
Virginia Smelting Co.

BLEACHING BOILERS, ROTARY
The Bigge Boiler Works Co.

BLEACHING APPARATUS
E. D. Jones & Sons Co.
Perkins & Sons, Inc., B. F.
Moore & White Co.
Niagara Alkali Co.
The Sandy Hill Iron & Brass Works

BLOW PIPES & PITS
Carthage Machine Co.
Kalamazoo Tank & Silo Co.
Moore & White Co.
Murray Mfg. Co., D. J.
Walworth Company

BOILERS
Babcock & Wilcox Co.
The Bigge Boiler Works Co.

BOTTOMS
Kalamazoo Tank & Silo Co.
Valley Iron Works Co.

BOXBOARD SCALES
Thwing-Albert Instrument Co.

BRUSH ROLLS
M. W. Jenkins Sons, Inc.

BRUSHES
M. W. Jenkins Sons, Inc.

BURSTING TESTERS
B. F. Perkins & Son Inc.
Testing Machines, Inc

CALENDERS
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
Lobdell Co.
Edward J. McBride
The Moore & White Co.
Perkins & Sons, Inc., B. F.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

CARRIER ROPE
Williams-Gray Co.

CASEIN
American Cyanamid Co., Industrial Chem. Div.
Hercules Powder Co.,

CASTINGS
American Cast Iron Pipe Co.
Appleton Machine Co.
Babcock & Wilcox Co.
Carthage Machine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Hamblett Machine Co.
Hardinge Company, Inc.
Lobdell Co.
Magnus Metal Corp.
Michigan Steel Casting Co.
The Sandy Hill Iron & Brass Works

"THEY WILL NEVER WEAR OUT"

METLKOR* COATING BRUSHES

"Your brushes are doing a million dollar job in an important coating mill," a prominent mill consultant told us. "But," he added, "you'll never see them replaced because those brushes will never wear out."

This coating brush has already outlasted the best previously used brush—and the Jenkins' nylon bristle has shown no signs of wear.

The core of this Jenkins' METLKOR Brush cannot warp, split, or get out of alignment. It will not deteriorate in use or in storage.

This mill will get many more years of trouble-free service from its Jenkins' METLKOR coating brushes.

JENKINS' BRUSHES ARE USED FOR:

- Coating
- Scrubbing
- Finishing
- Polishing
- Dusting and
- Spraying

Jenkins' Badger Hair Finisher. Typical of Jenkins' high standards of quality and workmanship.

Jenkins introduced the use of metal cores of aluminum or cold drawn steel.

Jenkins introduced a new patented method of putting on bristle with flat metal strips and moisture-proof plastic cement.

Jenkins introduced the use of nylon bristle with marked improvement in efficiency and durability.

Send for full information about Jenkins' Brushes.

M. W. JENKINS' SONS, INC.

Cedar Grove, Essex County, New Jersey

73 Years of Industrial Brush Know-How.

* Reg. U. S. Pat. Off.

- Design & Construction of Pulp and Paper Mills
- Steam and Hydro-Electric Power Plants
- Power Studies
- Reports and Appraisals
- Extensions and Alterations

EBASCO — ENGINEERS · CONSTRUCTORS · BUSINESS CONSULTANTS

EBASCO SERVICES
INCORPORATED
Two Rector Street, New York 6, N. Y.
Digby 4-4400

Only seven parts make up the
SIER-BATH GEAR COUPLING

- *Easy to install or dismantle*
- *No special tools needed*
- *Compact*
- *Lubricated*

Send for catalog # 6

FRANK W. EGAN & CO.
BOUND BROOK, N. J.
Builders of Paper Converting Machinery

EVERYTHING YOU'RE LOOKING FOR IN . . .
ELECTRICAL POWER EQUIPMENT
. . . FROM A SINGLE MOTOR TO A COMPLETE POWER PLANT—
DEPEND ON CHICAGO ELECTRIC TO SUPPLY IT

A modern up-to-date plant houses the fine rebuilding facilities and tremendous stock of rebuilt equipment that . . .

CHICAGO ELECTRIC

. . . has to service industry's needs. If you don't find what you want listed, write us TODAY. We can supply it from our stock of . . .

- AC MOTORS
- DC MOTORS
- GENERATORS
- M.G. SETS
- CONVERTERS
- COMPRESSORS
- SWITCHBOARDS
- TRANSFORMERS
- CONTROLS
- PUMPS

HERE'S A PARTIAL LISTING OF
GUARANTEED REBUILT SLIPRING MOTORS

HP	MAKE	TYPE	VOLTS	SPEED
700	Westghse.	CW	2200	720
600	Cr. Wh.	SR	6600	514
500	Ideal	AV-590	2200/4400	1800
500	Al. Chlrs.	ANY	440	600
400	Gen. Elec.	MT-412	2300	440
400	Al. Chlrs.	ANY	4000	514
350	Westghse.	CW	440	900
350	Al. Chlrs.	ANY	440	585
300	Gen. Elec.	IM	440	450
300	Gen. Elec.	MT-410	440	450
300	Gen. Elec.	IM-178	2300	450
300	Al. Chlrs.	ANY	2300	720
250	Al. Chlrs.	ANY	2300	300
250	Westghse.	CW	480	600
250	Cr. Wh.	ASR	440	600
250	Westghse.	CW-32B	440	900
200	Gen. Elec.	IM	2303	600
200	Westghse.	CW	2200	600
150	Gen. Elec.	IM	440	450
150	Gen. Elec.	IM	2300	720
125	Gen. Elec.	IM	2300	720
100	Gen. Elec.	IM	440	450
100	Westghse.	CW	440	575
100	Al. Chlrs.	ANY	440	720
75	Gen. Elec.	IM	440	514
75	Gen. Elec.	IM	440	600
75	Cr. Wh.	250	440	600

PHONE: CANAL 6-2900

CHICAGO *Electric Co.*
1325 W. CERMAK ROAD • CHICAGO 8, ILL.

WHERE TO BUY

Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Walworth Company

CENTRIFUGAL MACHINERY
Bird Machine Co.
Ross, J. O., Engrg. Co.

CHAINS
Link Belt Company

CHEMICAL COTTON PULP
Hercules Powder Co.

CHEMICALS
American Anode, Incorporated
American Cyanamid Co., Industrial Chem. Div.
Calco Chemical Co.
Calgon, Inc.
Cowles Chemical Company
Diamond Alkali Co.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuffs Corp.
Geigy Co., Inc.
Gottesman & Co.
Hercules Powder Co.
Hooker Electrochemical Co.
The Kinsley Chemical Company
Monsanto Chemical Company
National Aluminate Corp.
Niagara Alkali Company
Nopco Chemical Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Rohm & Haas Co.
Solvay Sales Corp.
Virginia Smelting Co.
Wyandotte Chemical Corp.

CHESTS
E. D. Jones & Sons Co.
Kalamazoo Tank & Silo Co.

CLEANING MATERIALS
Amer. Cyanamid & Chem. Corp.
Cowles Chemical Company
The Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Pittsburgh Plate Glass Co.
Solvay Sales Corp.
Wyandotte Chemicals Corp., J. B. Ford Division

CLUTCHES
Appleton Machine Co.
Farrel-Birmingham Co.
Hardinge Company, Inc.
Hudson Sharp Machine Co.
Rodney Hunt Machine Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works

COATING MACHINERY
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Hudson Sharp Machine Co.
The Mayer Machine Co., Inc.
Moore & White Co.
Potdevin Machine Co.
Waldron Corporation, John
Weber, Herman G., & Co., Inc.

COATING MATERIALS
American Anode Div.
E. I. Du Pont De Nemours & Co., Inc.,
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Monsanto Chemical Company
Nopco Chemical Co.

COGS
The N. P. Bowsher Co.

COMPOUNDED LATICES
American Anode Div.

COMPRESSORS
Allis-Chalmers Mfg. Co.
Nash Engineering Co.

CONDENSATE FILTERS
Hungerford & Terry, Inc.

CONSISTENCY REGULATORS
Bird Machine Company
DeZurik Shower Company
Paper & Industrial Appliances

CONSTRUCTION CONTRACTORS
C. M. Guest & Sons

CONSULTING ENGINEERS
Birk, F. Paul
Ebasco Services
Frank W. Egan & Co.
Ferguson, Hardy S.
Gibbs, Ralph
Alvin H. Johnson & Co., Inc.
Main, Inc., Chas. T.
Roderick O'Donoghue
The Rust Engrg. Co.
J. E. Sirrine & Co.
John Waldron Corp.
H. G. Weber & Co., Inc.

CONTROLLERS
Askania Regulator Company
The Bristol Co.
The Brown Instrument Co.
Cochrane Corp.

CONTROLS
Askania Regulator Company
The Bristol Company
The Brown Instrument Co.
Johnson Corp.
Stickle Steam Specialties Co.

CONVEYORS
Industrial Brownhoist Corp.
Link Belt Company
Murray, D. J., Mfg. Co.
Ross Engineering Corp., J. O.
Shartle Brothers Mch. Co.
Stephens-Adamson Mfg. Co.

CORES
Klixman Paper Co.
Rodney Hunt Machine Co.
Smith & Winchester Mfg. Co.
Sonoco Products Co.

CORROSION RESISTANT
Amercoat Corporation

COUPLINGS
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works
Waldron Corp., John

CRANES
Cleveland Crane & Engrg. Co.
Industrial Brownhoist Corp.
Link Belt Company
Whiting Corp.

CURL TESTER
Thwing-Albert Instrument Co.

CUTTERS
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
The Smith & Winchester Mfg. Co.
Taylor, Stiles & Co.

CYLINDERS
Askania Regulator Company
M. W. Jenkins Sons, Inc.
National Tube Co.

DAMPENERS
Perkins & Son, Inc., B. F.
Valley Iron Works Co.

DECKLE WEBBING
Williams-Gray Co.

DE-INKING
General Dyestuff Corp.
Kinsley Chemical Co.
Roderick O'Donoghue

DEINKING CHEMICALS
E. I. Du Pont De Nemours & Co., Inc.
General Dyestuff Corp.
Kinsley Chemical Co.
Monsanto Chemical Company

DE-MINERALIZING EQUIPMENT
Hungerford & Terry, Inc.

DENSOMETERS
W. & L. E. Gurley

DESIGN CONSTRUCTION
Ebasco Services

DETERGENTS
Calgon, Inc.
Cowles Chemical Co.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

DEWAXING CHEMICALS
General Dyestuff Corp.
Nopco Chemical Co.

DIFFERENTIAL SCALES
Thwing-Albert Instrument Co.

DIGESTERS
Babcock & Wilcox Co.
The Biggs Boiler Works Co.
Lukenweld
Pusey & Jones Corp.

DIRTEC
Bird Machine Co.

DISPERSING AGENTS
Calgon, Inc.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.

DOCTORS
Bird Machine Company
Downingtown Mfg. Co.
Lobdell Co.
Lodding Engineering Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works

DOCTOR BLADES
Bird Machine Company
Lodding Engrg. Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works

DRIERS
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Hardinge Company, Inc.
Lukenweld
The Moore & White Co.
Murray Mfg. Co., D. J.
J. J. Ross Company
Red-Ray Mfg. Co., Inc.
Ross Paper Marchy. Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.
The Youngstown Welding & Engrg. Co.

DRIVES
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Bird Machine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Farrel-Birmingham Co.
General Electric Company
Gibbs-Brower Company, Inc.
Rodney Hunt Machine Co.
Link Belt Company
Moore & White Co.
Murray, D. J., Mfg. Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.
Westinghouse Electric Corp.

DRYER DRAINAGE
Stickle Steam Specialties Co.

DRYER ROLL PYROMETER
Thwing-Albert Instrument Co.

DUSTERS
Appleton Machine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
M. W. Jenkins Sons, Inc.
E. D. Jones & Son Co.
Moore & White Co.
D. J. Murray Mfg. Co.
John Waldron Corp.

DUSTING BRUSHES
M. W. Jenkins Sons, Inc.

DYESTUFFS
American Cyanamid Company, Calco Chemical Div.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
General Dyestuffs Corp.
National Aniline Division, Allied Chemical & Dye Corp.

ELECTRIC HYGROMETER
Thwing-Albert Instrument Co.

EMBOSSING ROLLS
The Appleton Machine Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Northern Engraving & Mch. Co.
B. F. Perkins & Son, Inc.
John Waldron Corp.

EMULSIFIERS
General Dyestuff Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

ENZYMES
Rohm & Haas Co.
Pillsbury Mills, Inc.
Vanderbilt Co., R. T.

EVAPORATORS
Davis Engrg. Corp.
Goslin-Birmingham Mfg. Co. Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

EXPANDERS
Mount Hope Machinery Co.

FANS
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.
Stephens-Adamson Mfg. Co.

FEEDERS
Hardinge Company, Inc.
Merrick Scale Mfg. Co.
Leeds & Northrup

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Morey Paper Mill Supply Co.
Orr Felt & Blanket Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.
Williams-Gray Co.

Specify **SOLVAY** Trade-Mark Reg. U. S. Pat. Off. *and Get All 3!*

Quality

LIQUID CHLORINE
CAUSTIC SODA
SODA ASH

Service

SOLVAY plants and warehouses from coast to coast serve you speedily. SOLVAY Technical Service men—*specialists in the paper industry*—help you use SOLVAY products more efficiently, more economically.

Knowledge and Experience

SOLVAY has served the paper industry for over half a century. SOLVAY knows YOU—your needs and your problems.

It Pays to Specify SOLVAY

Also: Para-dichlorobenzene • Ortho-dichlorobenzene • Potassium Carbonate

SOLVAY SALES DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

BRANCH SALES OFFICES:
Boston • Charlotte • Chicago • Cincinnati • Cleveland • Detroit
Houston • New Orleans • New York • Philadelphia • Pittsburgh
St. Louis • Syracuse

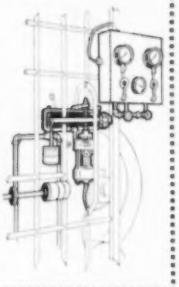
Photo, Courtesy J. M. Huber Corporation

Single Instrument Measures Smoothness, Porosity and Softness of Paper

You just interchange the lower test plates in the GURLEY-HILL S-P-S Tester to convert it into an instrument for testing either smoothness, porosity or softness of any type of paper, by measuring a given air-leakage over or through the paper. This 3 in 1 laboratory "assistant" is simple to operate, quick and accurate, and a real utility instrument where printing quality of paper must be reliably measured.

Bulletin No. 1400 describes the S-P-S Tester as well as other Gurley paper testing instruments. It's worth writing for today. W. & L. E. Gurley, 520 Fulton St., Troy, New York.

Get Higher Tonnage with Less Steam with STICKLE Automatic Moisture Control



Stickle Automatic Tension and Thermal Control will add 2% to the moisture content of paper, holding moisture content to ½ of 1% variation, thus eliminating over-drying and snapping. Increases tonnage without increasing amount of steam used. Ask for bulletin No. 160.

Stickle Steam Specialties Co.
2223 Valley Ave., Indianapolis, Indiana

DEINKING — DECOLORIZING
COOKING PROCESSES
K-121-B and K-140
ENGINEERING
THE KINSLEY CHEMICAL COMPANY
4638 WEST 130th STREET CLEVELAND 11, OHIO

"GIANT" RAG CUTTERS
for both large and small
PAPER MILLS
Capacities from one to five tons an hour.
10 Bridge St., Riegelsville, N. J.
TAYLOR-STILES and Company
CUTTING MACHINES & KNIVES

WHERE TO BUY

FELT CLEANERS
Calgon, Inc.
Cowles Chemical Co.
General Dyestuff Corp.
Nopco Chemical Co.

FELT CONDITIONERS
Bird Machine Co.

FELT GUIDES
Frank W. Egan & Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Waldron Corp., John

FILLERS
American Cyanamid Company, Industrial Chemicals Division
A. M. Meincke & Son, Inc.
Vanderbilt Co., R. T.
Witco Chemical Co.

FILTERS
Bird Machine Company
Hardinge Company, Inc.
Hungerford & Terry, Inc.
Johnson Corp.
Moore & White Co.
J. O. Ross Engrg. Corp.
Witco Chemical Co.
Walworth Company

FITTINGS
Crane Company
The Kuhns Bros. Co.
Walworth Company

FLEXIBLE COUPLINGS
Ajax Flexible Coupling Co.
John Waldron Corp.

FLOORING, GRATING AND TREADS
The Goodyear Tire & Rubber Company
Norton Co.

FLOW BOXES, STAINLESS-CLAD
Lukens Steel Co.

FORK LIFT TRUCKS
Towmotor Corp.

FORMATION
Thwing-Albert Instrument Co.

FORMING MACHINES
Downingtown Mfg. Co.
The Moore & White Co.
Noble & Wood Machine Co.
Oliver United Filters, Inc.
The Sandy Hill Iron & Brass Works

FREENESS TESTERS
Testing Machines, Inc.

GASKETS
The Goodyear Tire & Rubber Company

GEARS
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc
Lobdell Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

GRINDING WHEELS
Norton Company

GUIDES, WEB
Askania Regulator Company
The Moore & White Co.
Mount Hope Machinery Co.
Bound Brook Engrg. Co.
John Waldron Corp.

GUMS
National Starch Products Inc.
Stein-Hall Co., Inc.

HEADS
Babcock & Wilcox Co.
Lukens Steel Company

HEAT EXCHANGERS AND RECOVERY SYSTEMS
Davis Engrg. Corp.
Stickle Steam Specialties Co.
Westinghouse Electric Corp.

HEATING, VENTILATING & AIR CONDITIONING
The Appleton Machine Co.
Armstrong Machine Works
Davis Engrg. Corp.
E. D. Jones & Sons Co.
General Electric Co.
Leeds & Northrup
Minneapolis-Honeywell Regulator Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., J. O.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

HOSE (Air, Water, Suction, etc.
The Goodyear Tire & Rubber Company

IMPREGNANTS
American Anode Div.

INDENTING MACHINES
Dilts Machine Works.

INDUSTRIAL TRACTORS
Towmotor Corp.

INKOMETER
Thwing-Albert Instrument Co.

INSTRUMENTS, TESTING AND MEASURING
Askania Regulator Company
Bauer Brothers Co.
N. P. Bowsher
The Bristol Company
The Brown Instrument Co.
E. J. Cady Company
Cochrane Corp.
General Electric Company
W. & L. E. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Photovolt Corp.
Taylor Instrument Cos.
Testing Machines, Inc.
Thwing-Albert Instrument Co.

JOINTS
Johnson Corp.
Perfecting Service Corp.

JORDAN FILLINGS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Dilts Machine Works, Inc.
Hamblet Machine Co.
Hepenstall Company
E. D. Jones & Sons Co.
The Moore & White Co.
Taylor Stiles & Co.
Valley Iron Works Co.

KNOT BORING MACHINES
DeZurik Shower Company

LABORATORY CORRUGATOR
Thwing-Albert Instrument Co.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
The Biggs Boiler Works Co.
Bird Machine Company
Dilts Machine Works
W. & L. E. Gurley
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories

Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works Co.

LAY BOYS
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.

LUBRICANTS
Sinclair Refining Co.
Socony-Vacuum Oil Co.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

MATERIALS HANDLING
Cleveland Crane & Engrg. Co.
Frank G. Hough Co.
Stephens-Adamson Mfg. Co.
The Wellman Engrg. Co.

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Lobdell Co.
Testing Machines, Inc.

MOISTURE CONTENT CONTROL
Stickle Steam Specialties Co

MOTORS AND GENERATORS
Allis-Chalmers Mfg. Co.
Fairbanks, Morse & Co.
General Electric Company
Reliance Electric & Engrg. Co.

NICKEL AND NICKEL ALLOYS
The International Nickel Co.

NOZZLES
Link Belt Company

PACKING BOXES
Johnson Corporation
The Moore & White Co.
Perfecting Service Corp.

PAPER MACHINES
Bagley & Sewall Co.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lukenweld
Moore & White Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
E. D. Jones & Sons Co.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Co.
Langston Co., Samuel M.

PASTING MACHINES
Dilts Machine Wks.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Waldron Corp., John

PERFORATED METAL
Allis-Chalmers Mfg. Co.

pH METERS
Thwing-Albert Instrument Co.

PIGMENTS
Ferro Enamel Corp.

PIPE
American Cast Iron Pipe Co.
Armco Drainage & Metal Products, Inc.
Babcock & Wilcox Co.
Crane Company
Michigan Pipe Co.
Michigan Steel Casting Co.
National Tube Co.
Walworth Company
Youngstown Welding & Engrg. Co.

PIPE FITTINGS
American Cast Iron Pipe Co.
The American Rolling Mill Co.
Crane Company
Michigan Steel Casting Co.
Walworth Co.

PIPE MARKERS
W. H. Brady Co.

PITCH CONTROL
General Dyestuff Corp.
Monsanto Chemical Company
Rohm & Haas Co.

PLATERS
Gibbs-Brower Company, Inc
Perkins & Son, Inc., B. F.

PLATES
Armco Steel Corp.
Babcock & Wilcox Co.
The Biggs Boiler Works Co.
J. O. Ross Engrg. Corp.
Lukenweld Division
Lukens Steel Company
Timken Roller Bearing Co.

PLUGS
The Appleton Machine Co.
E. D. Jones & Sons Co.

PRECISION SAMPLE CUTTER
Testing Machines, Inc.
Thwing-Albert Instrument Co.

PRESERVATIVES
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.

PRESSURE VESSELS, STEEL AND ALLOY
Babcock & Wilcox Co.
The Biggs Boiler Works Co.

PRESSES
Dietz Machine Works
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
The Moore & White Co.
Paper Converting Machine Co. Inc.
Potdevin Machine Co.
Valley Iron Works Co.
Waldron Corp., John
M. G. Weber & Co., Inc.
Williams Apparatus Co.

PULP CLASSIFIER
The Bauer Bros. Co.
Thwing-Albert Instrument Co.

PULP STOCK VALVES
Crane Company
Record Fdy. & Mach. Co.

PULPERS
American Paper Machy. & Engrg. Works, Inc.
Bauer Brothers Co.
Dilts Machine Works
E. D. Jones & Sons Co.

PULPS
Brown Company
Gottesman & Co., Inc.
Klof Hansson, Inc.
Lyddon & Co. (America), Inc.
Parsons & Whittemore, Inc.

SONOCO
PAPER MILL CORES
Made to Fit Your Individual Specifications

DURO
RETURNABLE

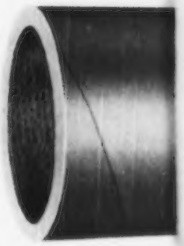
Made in one plus-standard quality. Equipped with SONOCO Heavy Duty or Light Duty, open or closed notched metal ends.

EN-DURO

A super-quality core to meet demands for extra strength and service. This is our highest grade core, and is recommended for those that need the best.

NON-RETURNABLE

NON-RETURNABLE



An extremely tough, strong, low cost core that meets the market for a standard product giving superior service.

Other paper cores for: paper twine, tire wrapping, toilet tissue, wax paper, paper toweling, decorative paper, gummed tape, and business machine paper.

Samples, prices and further information will gladly be sent on request... Address correspondence to Hartsville, South Carolina or Mystic, Connecticut.

SONOCO PRODUCTS COMPANY
BRANTFORD ONT. HARTSVILLE S. C. MYSTIC CONN.
DEPENDABLE SOURCE OF SUPPLY

CHAS. T. MAIN, INC.
CONSULTING ENGINEERS
Process Studies, Design, Specifications and Engineering Supervision
PULP AND PAPER MILLS
Steam, Hydraulic and Electrical Engineering
Reports, Consultation and Valuations
80 Federal Street — Boston 10, Mass.

RODERICK O'DONOGHUE
CONSULTING ENGINEER
PULP MILLS — PAPER MILLS
IMPROVED PROCESSES — DESIGNS — REPORTS
420 Lexington Ave. — New York City

HARDY S. FERGUSON & CO.
Consulting Engineers
200 FIFTH AVENUE, NEW YORK 10, N. Y.
Consultation, Reports, Valuation and Designs
for the Construction and Equipment of
Steam and Hydro-Electric Power Plants
Dams and Other Hydraulic Structures
Pulp and Paper Mills

THE RUST ENGINEERING COMPANY
Engineers and Constructors
Pittsburgh, Pennsylvania
Complete Service
for
PULP AND PAPER MILLS—PLANTS AND FACILITIES
DESIGN, CONSTRUCTION, MODERNIZATION

J. E. SIRRINE CO.
Greenville, South Carolina
Engineers
PAPER & PULP MILLS • WASTE DISPOSAL • TEXTILE MILLS •
APPRAISALS • WATER PLANS • STEAM UTILIZATION •
STEAM POWER PLANTS • HYDRO-ELECTRIC • REPORTS

CUT YOUR LIME RECOVERY COSTS
10 to 1 you can cut your lime-recovery costs as much as 50%. Our scientific tests will show actual savings possible. Details on procedure gladly furnished, no obligation. Delay costs you money. Write today.
RALPH E. GIBBS ENGINEERING, York, Pa., R. D. 4
Consulting Chemical Engineering Service

Sandy Hill
IRON & BRASS WORKS
PAPER MACHINERY SPECIALISTS • HUDSON FALLS, N. Y.
BUILDERS OF SANDY HILL, BERTRAMS AND KAMYR EQUIPMENT

Appleton Felts
DEPENDABILITY — UNIFORMITY — FINISH — DESIGN
APPLETON WOOLEN MILLS — APPLETON, WISCONSIN

WHERE TO BUY

Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.
Pulp Sales Corp.

PULPSTONES

Norton Company

PUMPS

American Paper Machy. & Engrg. Works, Inc.
Allis-Chalmers Mfg. Co.
Buffalo Pumps, Inc.
Byron Jackson Co.
DeLaval Steam Turbine Co.
Dorr Company
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Gibbs-Brower Company, Inc.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Roots Connersville Blower Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Warren Steam Pump Company

RADIANT BURNERS

Red-Ray Mfg. Co., Inc.

RAG COOKING PROCESSES

The Kinsley Chemical Company
General Dyestuff Corp.
Rohm & Haas Co.

RAG CUTTERS

Gibbs-Brower Company, Inc.
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

RECAUSTICIZING PLANTS

The Dorr Company

RECOVERY SYSTEMS

Babcock & Wilcox Co.
Bulkley, Dunton Pulp Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones Corp.
Ross Engineering Corp., J. O.
Valley Iron Works Co.

REELS

The Appleton Machine Co.
Downingtown Mfg. Co.
Hudson Sharp Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
The Smith & Winchester Mfg. Co.

REFINERS

Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Sutherland Refiner Corp.
Valley Iron Works

REGULATORS

American Paper Machy. & Engrg. Works, Inc.
Allis-Chalmers Mfg. Co.
Armstrong Machine Works
Bird Machine Company
The Bristol Company
DeZurik Shower Company
General Electric Co.
Johnson Corp.
Leeds & Northrup Company
Minneapolis-Honeywell Regulator Co.
National Technical Laboratories
Stickle Steam Specialties Co.
Taylor Instrument Companies
Wallace & Tiernan

RESINS

American Cyanamid Company, Industrial Chemicals Division
The Dow Chemical Company
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Monsanto Chemical Company
Rohm & Haas Co., Resinous Products Div.

ROLLS

American Cast Iron Pipe Co.
Appleton Machine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell Co.
Edward J. McBride & Co.
The Moore & White Co.
D. J. Murray Mfg. Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
U. S. Rubber Co.
Valley Iron Works Co.
Waldron Corp., John
The Youngstown Welding & Engrg. Co.

ROLL COVERS

The Cincinnati Rubber Mfg. Co.
The Goodyear Tire & Rubber Company
Edward J. McBride & Co.
Stowe-Woodward, Inc.

ROLL STANDS

Cameron Machine Co.
Frank W. Egan & Co.
Moore & White Co.
Potdevin Machine Co.
John Waldron Corp.
H. G. Weber & Co., Inc.

ROPE CARRIERS

The Moore & White Co.

ROTARY BOILERS

The Biggs Boiler Works Co.

ROTARY STEAM JOINTS

Johnson Corp.
The Moore & White Co.
Perfecting Service Corp.

RUBBER PRODUCTS

The Goodyear Tire & Rubber Company

SATURANTS

American Anode Div.

SATURATING MACHINES

Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
Noble & Wood Machine Co.
Potdevin Machine Co.
Waldron Corp., John
Weber, Herman G.

SAVEALLS

Bird Machine Company
Hardinge Company

SCALES

Fairbanks, Morse & Co.
Merrick Scale Mfg. Co.
Testing Machines, Inc.

SCREEN PLATES

Bird Machine Company
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Testing Machines, Inc.

SCREENS

Allis-Chalmers Mfg. Co.
Appleton Wire Works
Appleton Machine Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.

E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Stephens-Adamson Mfg. Co.
Valley Iron Works Co.

SHEET MACHINES
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Valley Iron Works Co.

SHOWER PIPES
Bird Machine Company
DeZurik Shower Company
Downingtown Mfg. Co.
Moore & White Co.
Sandusky Fdy. & Mch. Co.
Smith & Winchester Mfg. Co.

SHREDDERS
Bauer Brothers Co.
Carthage Machine Co.
Gibbs-Brower Company, Inc.

SIZING
American Cyanamid Company, Industrial Chemicals Division
The Dow Chemical Company
du Pont, E. I., de Nemours & Co.
Hercules Powder Co.
The Hubinger Co.
Monsanto Chemical Company
National Aluminate Corp.
Stein-Hall Co., Inc.

SIZING TESTER
W. & L. E. Gurley
Testing Machines, Inc.
Thwing-Albert Instrument Co.

SLIME CONTROL
The Dow Chemical Company
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.
Monsanto Chemical Co.
National Aluminate Corp.
Rohm & Haas Co.
Vanderbilt Co., R. T.

SLITTERS
Cameron Machine Co.
Carthage Machine Co.
Dietz Machine Works
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson Sharp Machine Co.
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

SMOKE STACKS
The Biggs Boiler Works Co.

SPLICING TISSUE
Williams-Gray Co.

SOFTNESS-STIFFNESS TESTER
W. & L. E. Gurley
Testing Machines, Inc.
Thwing-Albert Instrument Co.

SOLUBLE OILS
American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Nopco Chemical Co.

STAINLESS STEEL
American Cast Iron Pipe Co.
Armco Steel Corp.
Michigan Steel Casting Co
U. S. Steel Corp.

STARCH
American Cyanamid Company, Industrial Chemicals Division
A. M. Meincke & Son, Inc.
Clinton Foods, Inc.
The Hubinger Co.
National Starch Products Inc.
Stein-Hall Co., Inc.

STEAM JOINTS
The Moore & White Co.

STEAM SPECIALTIES
Babcock & Wilcox Co.
Combustion Engrg. Co., Inc.
Davis Engrg. Corp.
Johnson Corp.
Perfecting Service Corp.
Stickle Steam Specialties Co.

STEEL
Armco Steel Corp.
Carnegie Illinois Steel Co.
Lukens Steel Company
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
U. S. Steel Corp.

STEEL, CLAD
Babcock & Wilcox Co.
Lukens Steel Company

STEEL TANKS
The Biggs Boiler Works Co.

STRETCH TESTER
Thwing-Albert Instrument Co.

STUFF CHESTS
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
Valley Iron Works Co.

SUCTION BOXES
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works

SUCTION UNIT
Paper & Industrial Appliances, Inc.

SULPHUR
American Cyanamid Company, Industrial Chemicals Division
Texas Gulf Sulphur Co.
Witco Chemical Company

SULPHUR BURNERS
Valley Iron Works Co.

SULPHUR DIOXIDE
American Cyanamid Co., Calco Chemical Div.
Virginia Smelting Co.

SUPERCALENDERS
The Appleton Machine Co.
B. F. Perkins & Son, Inc.

SYNTHETIC LATICES
American Anode Div.
The Goodyear Tire & Rubber Company
Nopco Chemical Co.

TACHOMETERS
The Brown Instrument Co.

TALC
American Cyanamid Company, Industrial Chemicals Division
Vanderbilt Co., R. T.

TANKS
The Biggs Boiler Works Co.
Kalamazoo Tank & Silo Co.
The Noble & Wood Machine Co.
B. F. Perkins & Sons, Inc.
J. O. Ross Engrg. Corp.
Waldron Corp., John

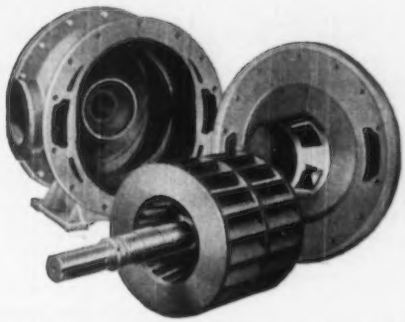
TEARING TESTERS
Testing Machines, Inc.

TENSILE TESTERS
B. F. Perkins & Son, Inc.
Testing Machines Inc.
Thwing-Albert Instrument Co.

WATER PENETRATION TESTER
Thwing-Albert Instrument Co.

WATER VAPOR CUPS
Thwing-Albert Instrument Co.

SIMPLICITY



NASH VACUUM PUMPS HAVE ONE MOVING PART

Operating advantages made possible by the Nash principle, and present in no other type of vacuum pump, permit a new level of operating economy. Nash Vacuum Pumps have but one moving part, a rotor cast in one piece, and revolving without metallic contact. There are no valves, no pistons or sliding vanes, no internal parts requiring wear adjustment or lubrication.

NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

PRICE & PIERCE LTD.

Wood Pulp and Paper Agents

60 E. 42 ST. N. Y. 17

WHERE TO BUY

THICKENERS, DECKERS AND SAVEALLS

The Appleton Machine Co.
Bird Machine Company
Bulkley, Dunton Pulp Co., Inc.
Carthage Machine Co.
Dilts Machine Works
Dorr Co.
Downingtown Mfg. Co.
Hardinge Co., Inc.
Moore & White Co.
D. J. Murray Mfg. Co.
Oliver United Filters, Inc
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Wks.
Valley Iron Works Co.

TITANIUM

American Cyanamid Co., Calco Chemical Div.
E. I. du Pont de Nemours & Co.
Titanium Pigment Co.
R. T. Vanderbilt Co.

TOOLS

Walworth Company

TRACTORS & TRUCKS

Towmotor Corp.

TRANSMISSIONS

Link Belt Company
Stephens-Adamson Mfg. Co.

TRAPS

Armstrong Machine Works
Crane Co.
Johnson Corporation
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

TUBES

Babcock & Wilcox Co.
National Tube Co.

TUBING, MECHANICAL

National Tube Co.

TUBS

Rodney Hunt Machine Co.
Valley Iron Works Co.

TURBINES

Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Company
Hunt, Rodney, Mach. Co.

USED EQUIPMENT

Gibbs-Brower Co.
Thomas W. Hall Co.
J. J. Ross Company
Ross Paper Machy. Corp.

VALVES

The Bristol Company
The Brown Instrument Co.
Crane Company
E. D. Jones & Sons Co.
Magnus Metal Corp.
D. J. Murray Mfg. Co.
William Powell Co.
Record Fdy. & Mch. Co.
The Sandy Hill Iron & Brass Wks.
Stickle Steam Specialties Co.
Taylor Instrument Companies
Trimbey Mach. Wks.
Valley Iron Works Co.
Walworth Company

WASHERS

Bird Machine Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Moore & White Co.
Oliver United Filters
The Sandy Hill Iron & Brass Wks.
Rodney Hunt Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

WASTE TREATING EQUIPMENT

The Dorr Company
Hungerford & Terry, Inc.

WATER CONDITIONING

Calgon, Inc.
General Dyestuff Corp.
Hungerford & Terry, Inc.
National Aluminate Corp.

WATER DISPERSIONS

American Anode, Inc.
Rohm & Haas Co., Resinous Products Div.

WATER SOFTENERS

Hungerford & Terry, Inc.

WAXING MACHINERY

Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
The Mayer Machine Co.
Potdevin Machine Co.
Waldron Corp., John
Weber, Herman G.

WELDING EQUIPMENT

General Electric Company
Walworth Company

WET MACHINES

Carthage Machine Co.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
Pusey & Jones Company
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

WETTING AGENTS

American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

WHITE WATER HEATERS, AUTOMATIC SELF CLEANING TYPE

Davis Engineering Corp.

WHITE WATER TREATING EQUIPT.

Hungerford & Terry, Inc.

WINDERS AND REWINDERS

The Appleton Machine Co.
Cameron Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Mach. Co.
Langston Co., Samuel M.
Moore & White Co.
Paper Converting Mch. Co.
Potdevin Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Waldron Corp., John

WIRE BRUSHES

M. W. Jenkins Sons Inc.

WIRES

Appleton Wire Works
International Wire Works
Lindsay Wire Weaving Co.
Williams-Gray Co.

WIRE BRUSHES

Williams-Gray Co.

WOOD SPLITTERS

The Appleton Machine Co.
Carthage Machine Co.

ADVERTISERS

IN THIS ISSUE

A

Appleton Woolen Mills 56

B

Bird Machine Co. 11

C

Chicago Electric Co. 52
Classified Advertising 47
Colledge, E. W. 45
Cowles Chemical Co. 45

D

Downingtown Mfg. Co. 2

E

Ebasco Services, Inc. 52
Egan, Frank W. 52

F

Farrell Birmingham Co., Inc. 6
Ferguson Co., H. K. 57
Ferguson, Hardy S., & Co. 56
Fitchburg Screen Plate Co. 45

G

Gibbs, Ralph E. 56
Gottesman & Co. .....Front Cover
Gurley, W. & L. E. 54

H

Hall, Thomas W., Co. 48
Huber Corp., J. M. 59

I

Industrial Brownhoist 27

J

Jenkins Sons, Inc., M. W. 51
Jones & Sons Co., E. D. 43

K

Kinsley Chemical Co. 54
Knox Woolen Co. 46

L

Lockport Felt Co. 8

M

Main, Charles T., Inc. 56
Michigan Steel Casting Co. 50
Monsanto Chemical Co. 19
Murray Mfg. Co., D. J. 44

N

Nash Engineering Co. 57
National Wax Co. 50

O

O'Donoghue, Roderick 56

P

Price & Pierce, Ltd. 57

R

Raymond, C. P., Service 47
Rice Barton Corp. 4
Ross, J. J., Co. 48
Ross Paper Mchy. Co. 49
Rust Engineering Co. 56

S

Sandy Hill Iron & Brass Wks. 56
Sirrine Co., J. E. 56
Socony Vacuum Oil Co. Back Cover
Solvay Sales Div., Allied Chem. & Dye Corp. 53
Sonoco Products Co. 55
Stickle Steam Spec. Co. 54
Sun Oil Co. .....16 & 17

T

Taylor Stile & Co. 54
Testing Machines, Inc. 46
Thwing-Albert Instrument Co. ... 42

U

U. S. Steel Corp. 23

W

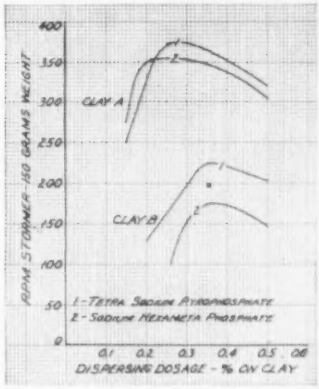
West Virginia Pulp & Paper Co. 46
Western Precipitation Corp. 3

HUGHES PRINTING CO.
EAST STROUDSBURG, PA.

KAOLIN CLAY FACTS... *for Paper Makers*

NUMBER 1 OF A SERIES FROM THE J. M. HUBER CORPORATION LABORATORIES

CHOICE OF DISPERSING AGENT IMPORTANT IN HIGH CONCENTRATION CLAY-WATER SYSTEMS. In operations requiring fluidity in highly concentrated clay-water systems, the selection of the right dispersing agent in the proper quantity is extremely important. Dispersing agents in common use for such purposes are the complex poly-phosphates, such as sodium hexametaphosphate, sodium tetraphosphate, or tetrasodium pyrophosphate. In some cases, the addition of small quantities of strong alkalies, such as soda ash or caustic soda, along with the phosphates produces greater liquification than can be produced by the use of a single material.



Effect of concentration of dispersing agents on flow properties of a 70% clay-water system. (Graph shows two Huber Special Hydratex Clays.)

Determining clay brightness at the Huber Clay Laboratories.

CLAY BRIGHTNESS UP AS MOISTURE DECREASES, STUDY SHOWS. The final brightness value of paper grade clays increases as the moisture content decreases, recent experimental work at the Huber Clay Laboratories, Huber, Ga., reveals. With moisture content of 8.0 per cent, brightness of 82.1 per cent was recorded. With moisture reduced to 1.5 per cent, brightness jumped to 84.1 per cent. The work is reported in "Brightness Determination of Paper Clays," by N. Millman, Technical Director of the Huber Clay Laboratories. Reprints may be obtained by writing the J. M. Huber Corporation on your company letterhead.

"AERFLOTED" FILLER CLAYS CUT FREIGHT COSTS 3-5%. The cost of freighting filler grade paper clays has been cut up to 5 per cent in many paper plants by the use of Huber's "Aerfloted" clays. Secret is the lower moisture content of "Aerfloted" filler grade clays. They contain only 1 to 2 per cent moisture, while water washed fillers average 4 to 7 per cent. Use of water washed fillers, with their high moisture content, adds 3 to 5 per cent to freight cost.

Per Cent Moisture in Filler Grade Paper Clays	
Huber "Aerfloted" Hi-White (Ga.)	1-2
Huber "Aerfloted" Paragon (So. Car.)	1-2
Huber Water Washed Filler (Ga.)	3-5
*Water Washed Filler "A"	5
*Water Washed Filler "B"	4

(*Samples "A" and "B" were obtained from mills using these grades regularly, and are believed to be representative.)

"Aerfloted" Clay is passed through dryer at Huber plant to reduce moisture content.

Have you received your copy of "Kaolin Clays and Their Industrial Uses"—new Huber 144-page technical reference book? Write on your company letterhead.

HUBER

J. M. HUBER CORPORATION, *342 Madison Avenue, New York 17, N. Y.*

MINES & PLANTS—LANGLEY, S.C., GRANITEVILLE, S.C., AND HUBER, GA.

ONE OF THE WORLD'S LARGEST CLAY PRODUCERS

Meet Mister MAGNOWAX!

He's Strong! He's Tough!
He's Flexible!

He's Socony-Vacuum's
New Microcrystalline Wax!

S/V Magnowax is already performing prodigious feats of strength for laminators. Leading companies report 40, 50 and even 70 percent greater laminating strength than other waxes.

S/V Magnowax is more flexible, particularly at low temperatures. At O° F. and below, it is as flexible as most conventional waxes at 15° F.

This added flexibility insures more continuous wax films. Result — lower Moisture-Vapor Transmission. Get performance facts and figures from your Socony-Vacuum Representative.

NOTE: Mr. Magnowax and the base on which he's performing, are made out of S/V Magnowax. His clothes are made from paper laminated with the new product.

SOCONY-VACUUM OIL COMPANY, INC.
26 Broadway, New York 4, New York, and Affiliates:
MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP.

Socony-Vacuum Process Products

Process Products
SOCONY-VACUUM